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Perfect score:
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Copyright (c) 1993 - 2002 Compugen Ltd
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/cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*
/cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*
/cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*
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US-09-724-676-90318
US-10-281-656-1
US-10-980-2154-21
US-09-802-154-21
US-10-98-656-1
US-10-98-656-2
US-11-258-662-13
PCT-US02-32727-2993
PCT-US02-32727-2993
PCT-US02-32727-25938
PCT-US02-32727-25938
PCT-US02-32727-25938
US-09-724-676-63353
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US-09-724-676-63356
US-09-724-676-63356
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US-09-724-676-63354
US-09-724-676-63354
US-09-724-676-87329
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US-09-724-676-90318
Sequence 90318, Appl
GENERAL INFORMATION:
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Matches 25
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	79239,	79255,	79244,	79255,	79244,	79251,	79241,	79251,	79241,	79256,	79245,	79256,	79245,	79252,	79242,	79252,	79242,	87328,	8/328,
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ALIGNMENTS

Application US/09724676

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APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative sp.
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION UNMBER: U5/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 90318
LENGTH: 58
TYPE: PRT
                                                                                                                                 ; ORGANISM: Homo sapiens US-09-724-676A-90318
                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
US-09-724-676A-90318
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                                                                                                                                                                                                                                                                                               Sequence 90318, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative
FILE REFERENCE: 129181.4 Compugen
                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 90318
LENGTH: 58
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                                                         ch 51.0%; Score 25; Similarity 100.0%; Pred. No. 25; Conservative 0; Mismatc
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LNPDCDELADHIGFQEAYRRFYGPV 58

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; LENGTH: 100
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-283-656-1
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US-09-802-154-21
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                                                                Sequence 2, Application US/10096246
GENERAL INFORMATION:
APPLICANT: The Minister of National Defence,
APPLICANT: Fulton, R E
APPLICANT: Alvi, Azhar E
APPLICANT: Nagata, Leslie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 21, Application US/09802154
GENERAL INFORMATION:
APPLICANT: Itoh, Nobuyuki
APPLICANT: Kavanaugh, W. Michael
TITLE OF INVENTION: HUMAN FGF-23 GENE AND GENE EXPRESSION
TITLE OF INVENTION: PRODUCTS
FILE REFERENCE: PP-17149.001/201130.409
CURRENT FILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 46
SOFTWARE: FSSTSEQ for Windows Version 4.0
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LENGTH: 13
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Best Local Similarity
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1
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                           APPLICANT: Nagata, Leslie
TITLE OF INVENTION: Cloning, Expression, Sequencing,
TITLE OF INVENTION: SCFV Antibody Against Venzuelan
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APPLICANT: MAYS, Robert W.
APPLICANT: BRUNDEN, Kurt F
CURRENT APPLICATION
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CURRENT FILING DATE: 2002-10-29
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TITLE OF INVENTION: Methods for Using Osteocalcin
FILE REFERENCE: ATX-005
                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: PRT ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
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                                                                                                                                                                                                                                                                                                                     10; Conservative
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NUMBER: US/10/096,246
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9.9e-20;
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                                 and Functional Enhancement of Mc
Equine Encephalitis Virus (Vee)
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Query Match
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Best Local Similarity
watches 10; Conserve
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; SEQ ID NO 2
; LENGTH: 257
; TYPE: PRT
; ORGANISM: Mouse hybridoma cell line 1A4A1
US-10-096-246-2
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PCT-US02-32727-14821
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SOFTWARE: PatentIn version 3.1
SEQ ID NO 2
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APPLICANT: Cao et al.
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                                                                                                                                         APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: US 08/466,120 PRIOR FILING DATE: 1995-06-06 PRIOR APPLICATION NUMBER: PCT/US94/07266 PRIOR FILING DATE: 1994-06-24
                              APPLICANT: Douglass, John
TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acne
FILE REFERENCE: 210121.514C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: US 09/022,789 PRIOR FILING DATE: 1998-02-12
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NUMBER OF SEQ ID NOS:
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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CURRENT FILING DATE: 2002-10-24
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                                                                          Lodes, Michael
Benson, Darin
Jones, Robert
Carter, Darrick
Barth, Brenda
                                                                                                                                                    Wang, Siqing
Jen, Shyian
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Zhang, Yanni
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Bhatia, Ajay
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Pred. No.
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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RESULT 9
PCT-USG2-32727-8047
; Sequence 8047, Application PC/TUS0232727
; GENERAL INFORMATION:
APPLICANT: Mitcham, Jennifer
; APPLICANT: Skeiky, Yasir
; APPLICANT: Persing, David
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                                                                                                                                                                                                                                                                                             ; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No: 2472784CD1
US-10-258-662-13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: POLICKY, Jennifer J.
TITLE OF INVENTION: RNA METABOLISM PROTEINS
FILE REFERENCE: PF-0771 USN
CURRENT APPLICATION NUMBER: US/10/258,662
CURRENT FILING DATE: 2002-10-25
PRIOR APPLICATION NUMBER: US 60/201,875
PRIOR APPLICATION NUMBER: US 60/200,184
PRIOR APPLICATION NUMBER: US 60/200,184
PRIOR APPLICATION NUMBER: US 60/202,090
PRIOR FILING DATE: 2000-05-04
PRIOR APPLICATION NUMBER: US 60/202,090
PRIOR FILING DATE: 2000-05-06
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SOFTWARE: PERL Program
SEQ ID NO 13
LENGTH: 451
TYPE: PRT
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Best Local Similarity 10v.
"""+ hes 6; Conservative
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Best Local Similarity
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LENGTH: 220
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APPLICANT:
APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Homo sapiens
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                                                                                                                                                      49 LGAPVP 54
                                                                                                                                                                                        6 LGAPVP 11
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AZIMZAI, Yalda
AU-YOUNG, Janice
HILLMAN, Jennifer L.
BAUGHN, Mariah R.
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BURFORD, Neil
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100.0%; Pr
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100.08; P1
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Pred. No. 72;
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; NUMBER OF SEQ ID NOS: 30992
; SEQ ID NO 8047
; LECOTH: 474
; TYPE: PRT
; ORGANISM: Propioni acnes
PCT-US02-32727-8047
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Best Local Similarity
"~+~hes 6; Conserve
RESULT 11
PCT-US02-32727-21198
Sequence 21198, Application PC/TUS0232727
GENERAL INFORMATION:
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Best Local S
Matches 6
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SEQ ID NO 29930
LENGTH: 509
TYPE: PRT
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APPLICANT: Barth, Brenda
APPLICANT: Douglass, John
APPLICANT: Douglass, John
FIITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acne
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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APPLICANT:
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APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
APPLICANT: Bhatia, Ajay
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acne
FILE REFERENCE: 210121.514C1
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CURRENT FILING DATE: 2002-10-11
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Jones, Robert
Carter, Darrick
Barth, Brenda
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Jen, Shyian
Lodes, Michael
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Wang, Siqing
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Jones, Robert
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Pred. No.
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79;
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75;
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RESULT 13
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                                                                                                                                                               SEQ ID NO 25938
LENGTH: 600
TYPE: PRT
ORGANISM: Propioni acnes
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LENGTH: 515
TYPE: PRT
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                                                                                                Matches
                                                                                                                        Query Match
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                                                                                                             Best Local Similarity
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APPLICANT:
APPLICANT:
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CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes
FILE REFERENCE: 21012.514C1
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Jen, Shyian
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Barth, Brenda
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Jones, Robert
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Barth, Brenda
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Jones, Robert
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Jen, Shyian
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Bhatia, Ajay
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                                        37
                                                                                               Conservative
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                                                                                                            12.2%; Score 6; DB 1; 100.0%; Pred. No. 91;
                                                                                                                                                                                                                                                                                                                                                                                                                       Jean Francois
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Sequence 63352, Application US/09724676
GENERAL INFORMATION:
APPLICANT: COMPUGEN LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129.181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 63352
LENGTH: 694
TYPE: PAT
ORGANISM: Homo sapiens
US-09-724-676-63352
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Best Local Similarity
"~+~hes 6; Conserve
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Best Local S
Matches 6
                                                                                                                                      SOFTWARE: PatentIn version 3.2
SEQ ID NO 63352
LENGTH: 694
TYPE: PRT
                                                                                                                                                                                                                                                      Sequence 63352, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
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SEQ ID NO 63353
LENGTH: 694
TYPE: PRT
ORGANISM: Homo sapiens
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                                                  Query Match
Best Local (
                                 Matches
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
                                                                                                                    ORGANISM: Homo sapiens
                                 Local Similarity hes 6; Conserva
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Pred. No

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LGAPVP 24

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Sequence 6353, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 63353
LENCTH: 694
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; ORGANISM: Homo sapiens
US-09-724-676A-63353
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US-09-724-676A-63356
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                                                                                                            Sequence 63356, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION UNMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
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Best Local :
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LENGTH: 902
TYPE: PRT
ORGANISM: Homo sapiens
-09-724-676A-63356
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
                                                               NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 63356
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TYPE: PRT
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RESULT 21
US-09-724-676-63354
; Sequence 63354, Application US/09724676
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
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Best Local Similarity
Matches 6; Conserv
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SEQ ID NO 31
LENGTH: 934
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Best Local
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APPLICANT: Morphotek, Inc.

TITLE OF INVENTION: Genetic Hypermutability of Plants for Gene Discovery and Diagn FILE REFERENCE: AG0002PCT (MOR-0132)

CURRENT APPLICATION NUMBER: PCT/US02/32637

CURRENT FILING DATE: 2002-10-11

PRIOR APPLICATION NUMBER: 60/328,750

PRIOR APPLICATION NUMBER: 60/328,750

PRIOR FILING DATE: 2001-10-12
                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 60/328,750
PRIOR FILING DATE: 2001-10-12
NUMBER OF SEQ ID NOS: 129
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CURRENT FILING DATE: 2002-10-11
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APPLICANT: Nicolaides, Nicolas C.
TITLE OF INVENTION: Genetic Hypermutability of Plants for Gene Discovery and Diagn
FILE REFERENCE: AG0002US (MOR-0133)
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TYPE: PRT
ORGANISM: Homo sapiens
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ORGANISM: Homo sapiens
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Best Local Similarity
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US-09-724-676-87329
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US-09-724-676-87329
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                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 87329
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LENGTH: 957
                                                                                  Query Match
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                                                                                                                                                LENGTH: 958
TYPE: PRT
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                                                      Local Similarity hes 6; Conserv
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Pred. No.
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Pred. No.
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CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 87327
LENGTH: 1021
TYPE: PRT
ORGANISM: Homo sapiens
US-09-724-676-87327
                                                                                                        APPLICANT: Compugen LTD:
TITLE OF INVENTION: Variants of alternative sp:
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 87327
LENGTH: 1021
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                                                                 ; ORGANISM: Homo sapiens US-09-724-676A-87327
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US-09-724-676A-87327
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 87329
LENGTH: 958
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Best Local
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
                                                                                              TYPE: PRT
   Local Similarity nes 6; Conserv
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; ORGANISM: Homo sapiens
US-09-724-676A-87328
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US-09-724-676A-87328
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; ORGANISM: Homo sapiens 
US-09-724-676-79242
                                                            Sequence 79242, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79242
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 87328
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 972722
SOFTWARE: Patentin version 3.2
SEQ ID NO 87328
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TYPE: PRT
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Sequence 79242, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARRE: Patentin version 3.2
SEQ ID NO 79242
LENGTH: 1484
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative spl
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
LENGTH: 1484
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; ORGANISM: Homo sapiens
US-09-724-676A-79242
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US-09-724-676A-79252
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US-09-724-676A-79242
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US-09-724-676-79252
Sequence 79252, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
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Sequence 79256, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79256
LENGTH: 1493
RESULT 35
US-09-724-676A-79245
; Sequence 79245, Application US/09724676A
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternat
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US-09-724-676-79245
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US-09-724-676-79256
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SEQ ID NO 79245
LENCTH: 1493
TYPE: PRT
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LENGTH: 1484
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Sequence 79256, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: COmpugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 79256
LENGTH: 1493
TYPE: PAT
ORGANISM: Homo sapiens
US-09-724-676A-79256
                                                                                                                                                          Sequence 79241, Application US/09724676

GENERAL INFORMATION:

APPLICANT: Compugen LTD

TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676

CURRENT FILING DATE: 2000-11-28

NUMBER OF SEQ ID NOS: 97222

SOFTMARE: Patentin version 3.2

SEQ ID NO 79241

LENGTH: 1836

TYPE: PRT
                                                                                                                              ; ORGANISM: Homo sapiens US-09-724-676-79241
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Best Local Similarity
Matches 6; Conserve
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Best Local Similarity
Watches 6; Conserve
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CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79245
LENGTH: 1493
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Best Local Similarity
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1332 ELADHI 1337
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100.0%; Pred. No. 2e
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100.0%; Pred. No.
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o. 2e+02;
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5. 2.4e+02;
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RESULT 39
US-09-724-676A-79241
Sequence 79241, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79241
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Best Local Similarity
Thes 6; Conserve
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                                                                                              ; ORGANISM: Homo sapiens US-09-724-676A-79251
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; ORGANISM: Homo sapiens
US-09-724-676-79251
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEO ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEO ID NO 79251
LENGTH: 1836
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Matches
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SOFTWARE: PatentIn version 3.2
SEQ ID NO 79251
LENGTH: 1836
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                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
                                                                                                                                                                                                                                      APPLICANT: Compugen LTD TITLE OF INVENTION: Variants of alternative splicing FILE REFERENCE: 129181.4 Compugen
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o. 2.4e+02;
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US-09-724-676-79244

Sequence 79244, Application US/09724676

GENERAL INFORMATION:

APPLICANT: Compugen LTD

TITLE OF INVENTION: Variants of alternative splicing

FILE REFERENCE: 129181.4 Compugen
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Best Local Similarity
Thehes 6; Conserve
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US-09-724-676-79255
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Best Local Similarity
Gatches 6; Conserve
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; ORGANISM: Homo sapiens
US-09-724-676A-79244
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                                 APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOSTWARE: PatentIn version 3.2
SEQ ID NO 79244
LENGTH: 1845
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SOFTWARE: PatentIn version 3.2
SEQ ID NO 79255
LENGTH: 1845
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SEQ ID NO 79244
LENGTH: 1845
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CURRENT FILING DATE: 2000-11-28
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| 1332 ELADHI 1337
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RESULT 45
US-09-724-676-79239
US-09-724-676-79239
Sequence 79239, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181 4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79239
LENGTH: 1903
TYPE: PRT
ORGANISM: Homo sapiens
US-09-724-676-79239
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SEQ ID NO 79255
LENGTH: 1845
TYPE: PRT'
ORGANISM: Homo sapiens
US-09-724-676A-79255
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US-09-724-676A-79255
US-09-724-676A-79255
Sequence 79255, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
Search completed: December 4, 2002, 15:54:12 Job time : 15 secs
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Best Local Similarity 100.
Matches 6; Conservative
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Best Local Similarity 100.0%; Pred. No. 2.5e+02;
Matches 6; Conservative 0; Mismatches 0; Indels
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1341 ELADHI 1346
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| 1341 ELADHI 1346
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GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd

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Minimum
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ALIGNMENTS

RESULT 1 S02208

Osteocalcin - emu
C;Species: Dromaius novaehollandiae (emu)
C;Date: 01-Dec-1989 #sequence_revision 01-Dec-1989 #text_
C;Accession: S02208
R;Huq, N.L.; Tseng, A.; Chapman, G.E.
Blochem. Int. 15, 271-277, 1987
A;Title: The amino acid sequence of emu osteocalcin: gas A;Reference number: S02208; MUID:88134266; PMID:3501719
A;Accession: S02208

(emu) ion 01-Dec-1989 #text_change

18-Jun-1993

phase

sequencing of Gla-cont

A; Molecule type: protein A; Residues: 1-48 <HUQ> C; Superfamily: osteocalcip

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cystatin precursor hypothetical prote 2n-alpha 2-glycopr hypothetical prote C02C2.6 protein -
                                                                                                                                                                                 Osteocalcin - crab-eating macaque
N;Alternate names: BCP; bone Gla protein; gamma-carboxyglutamic acid-containing prote
C;Species: Macaca fascicularis (crab-eating macaque)
C;Date: 27-Nov-1985 **sequence_revision 27-Nov-1985 **text_change 06-Sep-1996
C;Accession: A03302
R;Hauschka, P.V.; Carr, S.A.; Biemann, K.
Biochemistry 21, 638-642, 1982
A;Title: Primary structure of monkey osteocalcin.
A;Reference number: A03302; MUID:82182842; PMID:6978733
A;Accession: A03302
A;Molecule type: protein
A;Residues: 1-49 <HAU>
C;Comment: This protein, isolated from bone, binds strongly to apatite.
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;97,Modified site: 4-hydroxyproline (Pro) **status experimental
F;17, 21,24/Modified site: gamma-carboxyglutamic acid (Glu) **status experimental
F;23-29/Disulfide bonds: **status experimental
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LNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                  Similarity
                                                                                             Conservative
                                                                                                                51.0%; Score 25; DB 1; I 100.0%; Pred. No. 1.9e-20;
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C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; extracellular
F;1-51/Domain: signal sequence #status predicted <SIG>
F;52-100/Product: osteocalcin #status experimental <MAT>
F;00/Modified site: 4-hydroxyproline (Pro) #status absent
F;68/Modified site: gamma-carboxyglutamic acid (Glu) (partial) #status
F;72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status
F;74-80/Disulfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Gene: GDB:BGLAP
A;Cross-references: GDB:118760; OMIM:112260
A;Map position: 1q25-1q31
A;Map position: 35/1; 38/2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Title: Isolation of the human gene for be A;Reference number: A91045; MUID:87004555; A;McCession: C25471
    R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.;
Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid seame
                                                         C;Species: Bos primigenius taurus (cattle)
C;Date: 24-Apr-1984 #sequence_revision 07-Apr-1994 #text_change
C;Accession: S12653; A03303; S08693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: EMBL:X04143; NID:g29449; PIDN:CAA27763.1; PID:g29450 R;Poser, J.W.; Esch, F.S.; Ling, N.C.; Price, P.A. J. Biol. Chem. 255, 8685-8691, 1980 J. Biol. Chem. 255, 8685-8691, 1980 A;Title: Isolation and sequence of the vitamin K-dependent protein from human A;Reference number: A03301; MUID:81006914; PMID:6967872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Residues: 1-100 <KIE>
A;Residues: 1-100 <KIE>
A;Cross references: EMBL:X53698; NID:g36092; PIDN:CAA37736.1; PID:g36093
A;Cross references: EMBL:X53698; NID:g36092; PIDN:CAA37736.1; PID:g36093
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C;Species: Homo sapiens (man)
C;Date: 31-Dec-1980 #sequence_revision_07-Apr-1994
                                                                                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Comment: This protein, isolated from bone, binds strongly to apatite.
C;Comment: Alternative splicing may produce the sequence presented in reference A91045.
C;Comment: Glu-68 is gamma-carboxylated in 9-50% of the molecules.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Title: Direct identification of gamma-carboxyglutamic A;Reference number: A44566; MUID:92222128; PMID:1807167 A;Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid sequences of human A;Reference number: $12652; MUID:90245603; PMID:2336375
A;Accession: $12652
                                                                                                                                        N; Alternate
                                                                                                                                                           osteocalcin precursor - bovine
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EMBO J. 5, 1885-1890,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Accession: S12652; C25471; A03301; S08694
R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   osteocalcin precursor [validated] -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: protein A; Residues: 52-100 < POS>
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A; Residues: 1-32,35-100 <CEL>
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A; Residues: 1-100 < KI
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04555; PMID:3019668
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  sequences
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                                              Barr, P.J.
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Best Local
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les 15; Conserv
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N;Alternate names: BGP; bone Gla protein; gam
C;Species: Gallus gallus (chicken)
C;Date: 15-Oct-1982 #sequence_revision 15-Aug
C;Accession: I50700; A03305
R;Neugebauer, B.M.; Moore, M.A.; Broess, M.;
J. Bone Miner. Res. 10, 157-163, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: protein
A; Residues: 52-100 cPRI>
A; Residues: 52-100 cPRI>
C; Comment: This protein, isolated from bone, binds strongly to apat
C; Superfamily: osteocalcin
C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding; carboxyglutamic acid; hydroxypro
C; Keywords: bone; calcium binding; carboxyglutamic acid; hydroxypro
C; Keywords: bone; calcium binding; carboxyglutamic acid; hydroxypro
F; 51/Domain: signal sequence #status experimental cMT>
F; 60/Modified site: 4-hydroxyproline (Pro) #status experimental
F; 68,72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status
F; 68,72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status
A; Reference number:
A; Accession: I50700
A; Status: prelimina:
                                                     A; Title: Characterization of structural sequences in the A; Reference number: I50700; MUID:95266465; PMID:7747623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline F;9/Modified site: 4-hydroxyproline (Pro) #status experimental F;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status expe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Shimomura, H.; Kanai, Y.; Sanada, K.
J. Biochem. 96, 405-411, 1984
A;Title: Primary structure of cat osteocalcin.
A;Reference number: A03304; MUID:85054706; PMID:6334077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing C;Species: Felis silvestris catus (domestic cat)
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  preliminary; translated
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Pred. No.
  from GB/EMBL/DDBJ
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Pred. No.
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                                                                                                                                                                                                                                                gamma-carboxyglutamic acid-containing
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A; Molecule type: mRNA
A; Residues: 1-97 < NEUV
A; Cross-references: EMBL:U10578; NID:g1008455; PIDN:AAA78809.1; PID:g595408
R; Carr, S.A.; Hauschka, P.V.; Biemann, K.
J. Biol. Chem. 256, 9944-9950, 1981
A; Title: Gas chromatographic mass spectrometric sequence determination of osteocalcin, a A; Reference number: A03305; MUID:82007831; PMID:6792200
A; Recession: A03305
A; Molecule type: protein
A; Residues: 49-63, 'I', 65-77, 'N', '79-82, 'EL', 85-90, 'O', 91-97 < CAR>
C; Comment: The gamma-carboxyglutamic acid residues formed by vitamin K-dependent posttra C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding; carboxyglutamic acid
F; 49-97/Product: osteocalcin #status experimental < MATP>
F; 65,69,72/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
F; 71-77/Disulfide bonds: #status predicted
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N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing;
C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 22-Jun-1999
C;Accession: A31856; A31419; A32324; A25167; A25471
R;Yoon, K.; Rutledge, S.J.C.; Buenaga, R.F.; Rodan, G.A.
Biochemistry 27, 8521-8526, 1988
A;Title: Characterization of the rat osteocalcin gene: stimulation of promoter a A;Reference number: A31836; MUID:89118260; PMID:3265336
A;Molecule type: DNA
A;Residues: 1-99 <700>
A;Residues: 1-99 <700>
A;Residues: 1-99 <700>
A;Residues: 1-99 <700>
A;Residues: 1-90 <700>
A
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A;Rotecule type: mRNA
A;Rotecule type: mR
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R;Lian, J.; Stewart, C.; Puchacz, E.; Mackowiak, S.; Shalhoub, V.; Collart, D.; Zambe Proc. Natl. Acad. Sci. U.S.A. 86, 1143-1147, 1989
A;Title: Structure of the rat osteocalcin gene and regulation of vitamin D-dependent A;Reference number: A32324; MUID:89145200; PMID:2784002
A;Accession: A32324
A;Molecule type: DNA
A;Residues: 1-99 CLIA>
A;Residues: 1-99 CLIA>
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A;Accession: A31419
A;Molecule type: DNA
A;Residues: 1-99 <THE>
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A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat bone Gla protein gene A;Title: Molecular structure of the rat b
A; Molecule type: mRNA
A; Residues: 1-99 <CEL>
A; Cross-references: GB
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GB:X04141; NID:g55826; PIDN:CAA27761.1;
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Pred. No.
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3.7e-08;
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PID:g55827
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A; Molecule type: DNA
A, Residues: 1-536 <TEL>
A; Cross-references: EMBL:AF030027; NID:g2605950;
A; Experimental source: strain NS80567
C; Genetics:
A; Note: 63
C; Superfamily: varicella-zoster virus gene 63 prof; Superfamily: NING finger homology <RRN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C;Genetics: 22/1; 33/1; 56/2
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydr
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydr
F;1-21/Domain: signal sequence #status predicted <SIG>F;2-49/Domain: propeptide #status predicted <PRO>F;20-99/Product: osteocalcin #status predicted <OCN>F;58/Modified site: 4-hydroxyproline (Pro) #status predicted
F;66,70,73/Modified site: gamma-carboxyglutamic acid (Glu) #s
F;72-78/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                              probable transcription activator - equine herpesvirus 4 (strain NS80567) c;Species: equine herpesvirus 4
A;Variety: strain NS80567
C;Date: 11-Jan-2000 #sequence_revision 11-Jan-2000 #text_change 21-Jul-2000 C;Accession: T42606
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C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline; pyroglutamic E;Lywords: bone; calcium binding; carboxyglutamic acid (Gln) #status experimental
E;2/Modified site: pyrrolidone carboxylic acid (Gln) #status experimental
E;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
E;23-29/Disulfide bonds: #status predicted
                                                                                                                                                                                                                    A;Title: The DNA sequence of equine herpesvirus-4. A;Reference number: Z22173; MUID:98264497; PMID:9603335 A;Accession: T42606
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                                                                                                                                                                                                                                                                                         R; Telford, E.A.;
J. Gen. Virol. 7
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Date: 12-May-1994 #sequence_revision 02-Jun-1994 C;Accession: A61280
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                                                                                                                                                                                           A; Status: preliminary; translated
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                                                                                                                                                                                                                                                                                         .; Watson, M.S.; Perry, J.; Cullinane, 79, 1197-1203, 1998
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Pred. No.
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Pred. No.
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7.1e-05;
hes 0;
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Score

8; DB

<u>ب</u>

Length 536

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A;Authors: Hou, S.; Daniels, C.J.; Dennis, P.P.; Omer, A.D.;
A;Title: Genome sequence of Halobacterium species NRC-1.
A;Reference number: A84160; MUID:20504483; PMID:11016950
A;Accession: B84226
A;Status: preliminary
probable transcription regulator PA0815 [imported] - Pseudomonas aeruginosa
C;Species: Pseudomonas aeruginosa
C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change 31-Dec-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R; Goodner, B.; Hinkle, G.; G;
A.; Liu, F.; Wollam, C.; Al.
Science 294, 2323-2328, 2001
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C;Date: 30-Sep-2001 #sequence_revision 30-Sep-2001 #text_change 11-Jan-2002
C;Accession: E97419
                                                   G83544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3-hydroxyacyl-CoA dehydrogenase [imported] - Halobacterium sp. NRC-1 C;Speckes: Halobacterium sp. NRC-1 C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 16-Feb-2001 C;Accession: B84226
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                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-286 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                       ; Leithauser, B.; Keller, K.; C
Jung, K.H.; Alam, M.; Freitas,
Proc. Natl. Acad. Sci. U.S.A. 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R; Ng, W.V.; Kennedy, S.P.; Mahairas, G.G.; Berquist,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
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A; Residues: 1-275 < KUR>
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Best Local S
Matches 7
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                                                                                                                 ELADHIG
                                                                                                                                             ELADHIG 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FQEAYRR 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FQEAYRR 44
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                                                                                                                                                                                                14.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       K.; Cruz, R.; Danson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14.3%; Score 7; DB 100.0%; Pred. No. 4. tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; Gattung, S.; Miller, N.; Blanchard, M.; Qurollo, Allinger, M.; Doughty, D.; Scott, C.; Lappas, C.;
                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
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Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                        М.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:g15155426;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                       M.; Shukla,
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                                 (strain
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Markelz, B.
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).G.; Jabl
                                                                                                                                                                                                                                              homolog
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M.
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Best Local Similarity
""" Conserve
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.; Lory, S.; Olson, M.V.
Nature 406, 959-964, 2000
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A; Molecule type: mRNA
A; Residues: 1-447 <RES>
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A; Residues: 1-317 <STO>
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                                                                                                                                                                                            C; Accession: S09848
                                                                                                                                                                                                                                                            N; Alternate
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                                                                              A; Status: nucleic acid sequence
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mes 7; Conserv
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A; Molecule type: DNA A; Residues: 1-586 <CHE> A; Residues: 1-586 <CHE> A; Cross-references: EMBL:X17403; NID:g59591; PIDN:CAA35358.1; A; Note: this sequence was submitted to the EMBL Data Library, C; Superfamily: human cytomegalovirus 65K early nonstructural p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Homo sapiens (man)
C;Date: 16-Feb-1996 #sequence_revision 16-Feb-1996 #text_change 20-Sep-1999
C;Accession: I38975
                                                                                                                           A; Title: Analysis of the protein-coding con A; Reference number: S09749; MUID:90269039; A; Accession: S09848
                                                                                                                                                                                  R;Chee, M.S.; Bankier, A.T.; Beck, S.; Bohni, R.; M.; Barrell, B.G.
Curr. Top. Microbiol. Immunol. 154, 125-169, 1990
                                                                                                                                                                                                                                                                     C;Species: human cytomegalovirus, human herpesvirus A;Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:U22662; NID:g726512; PIDN:AAA85856.1; PID:g726513 C;Superfamily: unassigned erbA-related proteins; erbA transforming protein C;Keywords: zinc finger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genes Dev. 9, 1033-1045, 1995
A;Title: LXR, a nuclear receptor that defines a distinct retinoid response pathway.
A:Reference number: I38975; MUID:95262897; PMID:7744246
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F;96-367/Domain: erbA transforming protein
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                                                                                                                                                                                                                                                                                                                                   nonstructural protein -
ce names: UL84 protein
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100.0%;
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L.L.; (
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%; Pred. No. 6.5
0; Mismatches
                                                                                                          not shown;
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                                                                                                                                                                                                                                                                                                                                                           human cytomegalovirus
                                                                                                                                                                                                                                 S.; Bohni, R.; Brown,
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                                                                                                                                                                                                                                                                            31-Dec-1992 #text_change 16-Jul-1999
                                                                                                                                                content of the sequence of 39; PMID:2161319
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K.R.; Kas,
                                                                                                                                                                                                                                 C.M.; Cerny, R.; Horsnell,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIDN: AAG04204.1;
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      protein
                                              PID:g1780862
                           December 1989
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RESULT 15
WHBETE
WHBETE
65K early nonstructural protein - human cytomegalovirus
65K early nonstructural protein - human cytomegalovirus
C;Species: human cytomegalovirus, human herpesvirus 5
A;Note: host Homo sapiens (man)
C;Date: 31-bec-1992 #sequence_revision 31-bec-1992 #text
                                                                                                                                                    C;Superfamily: acyl carrier protein homology; acetate-CoA ligase C;Keywords: carrier protein; phosphopantetheine; phosphoprotein F;3472-3541/Domain: acyl carrier protein homology <ACP1> F;4039-4427/Domain: acetate-CoA ligase homology <ACP2> F;4039-4427/Domain: acyl carrier protein homology <ACP2> F;2210,3505/Binding site: phosphopantetheine (Ser) (covalent) #st
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                                                                                                                                                                                                                                                                                                                                                A;Molecule type: DNA
A;Residues: 1-4767 <WAT>
A;Cross-references: EMBL:U56248; NID:g1293789; PID:g1293790; PIDN:AAA98699.1
                                                                                                                                                                                                                                                                                                                                                                                                               submitted to the EMBL Data Library, April 1996
A;Description: The C. briggsae genome sequencing pr
A;Reference number: 221010
A;Accession: T31345
A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical protein G01D9.5 - Caenorhabditis briggsae C;Species: Caenorhabditis briggsae C;Date: 29-Oct-1999 #te:C;Date: 29-Oct-1999 #te:
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A; Accession: A41808
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A;Title: Characterization of human cytomegalovirus UL84
A·Pafarance number: A41808; MUID:92114132; PMID:1309892
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F;114-135/Region: leucine zipper motif
F;324-372/Region: leucine zipper motif
                                                                                                                                                                                                                                                                                          A;Introns: 269/3; 341/3; 853/1; 920/2; 4452/3; 4534/3; 4592/3; 4654/3; 4670/3; 4707/2;
A;Note: G01D9.5
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A; Residues: 1-587 <HEY>
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                                                                     Similarity 7; Conserv
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llarity 100.0%;
Conservative (
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100.0%; Pred. No.
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Pred. No.
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                                                                                                              DB 2;
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8.
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L71-1 protein - fruit fly (Drosophila melanogaster)
C;Species: Drosophila melanogaster
C;Date: 19-Jul-1996 #sequence_revision 26-Jul-1996 #text_
C;Accession: $62333; $62342
R;Wright, L.G.; Chen, T.; Thummel, C.S.; Guild, G.M.
J. Mol. Biol. 255, 387-400, 1996
A;Title: Molecular characterization of the 71E late puff
A;Reference number: $62333; MUID:96152797; PMID:8568884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Peterson, S.; Loftus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; M son, J.D.; Kelley, J.M.; Cotton, M.D.; Weidman, J.M.; Fujii, C.; Bowman, C.; Watth Nature 388, 539-547, 1997

A;Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.; Smith, H.O.; Fras. A;Title: The complete genome sequence of the gastric pathogen Helicobacter pylori. A;Reference number: A64520; MUID:97394467; PMID:9252185

A;Accession: B64550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Accession: B64590

R;Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, R
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A;Variety: strain J99
C;Date: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 24-Sep-1999
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C;Species: Helicobacter pylori
C;Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 13-Aug-1999
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C; Superfamily:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Genomic sequence comparison of two unrelated isolates of the human gastric A;Reference number: A71800; MUID:99120557; PMID:9923682 A;Accession: C71923
                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Cross-references: GB:AE000570; GB:AE000511; NID:g2313672; PIDN:AAD07628.1; PID:g231C;Superfamily: Escherichia coli ribosomal protein S21
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A; Residues: 1-70 < TOM>
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A; Residues: 1-70 <ARN>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; Accession: C71923
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Best Local
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2.24 100.0%; Pred. No
Conservative 0
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Q.; Taylor, D.E.; Vovis, (
                           Drosophila melanogaster
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H.O.; Fraser, Watthey,

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A; Accession: S62333
A; Molecule type: DNA
A; Residues: 1-100 <WRI>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: EMBL:U24095; C;Genetics:
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                                                                                                                                                                  yidd family - Chlamydophila pneumoniae (strain CWL029)
C;Species: Chlamydophila pneumoniae, Chlamydia pneumoniae
C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 05-May-2000
C;Accession: H72660
R;Kalman, S.; Mitchell, W.; Marathe, R.; Lammel, C.; Fan, J.; Olinger, L.; G
Rature Genet. 21, 385-389, 199
A;Title: Comparative genomes of Clamydia pneumoniae and C. trachomatis.
A;Reference number: A72000; MUID:99206606; PMID:10192388
A;Accession: H7260
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E86564
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A;Introns: 12/1; 79/1
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A; Residues: 1-100 <WRW>
                                                A;Experimental source:
C;Genetics:
A;Gene: yidD
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A;Molecule type: DNA
A;Residues: 1-103 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic Acids Res. 28, 2311-2314, 2000
A;Title: Comparison of whole genome sequences of chlamydia A;Reference number: A86491; MUID:20330349; PMID:10871362 A;Accession: E86564
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                                                                        A;Residues: 1-103 <ARN>
A;Residues: 1-103 <ARN>
A;Cross-references: GB:AE001643; GB:AE001363; NID:g4376876; PIDN:AAD18731.1; PID:g43768
A:Experimental source: strain CWL029
                                                                                                                   A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-103 <ARN
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A; Gene: yid
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A;Experimental source: strain J138
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Best Local
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Query Match
Best Local
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Similarity
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conserved hypothetical protein CP0156 [imported] - Chlamydophila pneumoniae
C;Species: Chlamydophila pneumoniae, Chlamydia pneumoniae
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 11-May-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Read, T.D.; Brunham, R.C.; Shen, C.; Gill, S.R.; Heidelberg, J., C.; Dodson, R.; Gwinn, M.; Nelson, W.; DeBoy, R.; Kolonay, J.; Nucleic Acids Res. 28, 1397-1406, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Genome sequences of Chlamydia trachomatis MoPn and A;Reference number: A81500; MUID:20150255; PMID:10684935 A;Accession: E81606
                                                                                                                                                                                                                                                                                                                               C;Superfamily: hemerythrin
C;Keywords: iron; oxygen carrier
F;25,54,58,74,78,107,112/Binding
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C;Species: Nereis diversicolor (sandwor
C;Date: 19-May-1994 #sequence_revision
C;Accession: S38261
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A; Gene: CP0156
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                                R;Graves, M.V.; Van Etten, submitted to the EMBL Data
                                                                            DEAH box protein a550R - Chlorella virus PBCV-1
C;Species: Chlorella virus PBCV-1
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999
                                                                                                                                 RESULT
T18052
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                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Amino acid sequence of the small cadmium-binding protein (MP A;Reference number: S38261; MUID:94039032; PMID:8223553
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A;Experimental source: strain AR39, HL cells
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A; Residues: 1-106 < REA>
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Mismatches
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C;Genetics:
A;Note: a55(
C;Superfamil
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C;Date: 03-Aug-1984 #sequence_revision 12-Apr-1996 #text_change 29-Oct-1999
C;Accession: A34456; A01274; S01461; S48159; S04008; JN0789
R;Colella, R.; Sakaguchi, Y.; Nagase, H.; Bird, J.W.C.
J. Biol. Chem. 264, 17164-17169, 1989
A;Title: Chicken egg. white Cystatin. Molecular cloning, nucleotide sequence, and
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A;Molecule type: DNA
A;Residues: 1-136 <GRA>
A;Cross references: EMBL:U42580;
A;Experimental source: specific l
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A; Residues: 24-139 <SCH>
R; Turk, V.; Brzin, J.; Longer, M.; Ritonja, A.; Eropkin, N
Hoppe-Seyler's Z. Physiol. Chem. 364, 1487-1496, 1983
A; Title: Protein inhibitors of cysteine proteinases. III.
A; Reference number: S01461; MUID:84110059; PMID:6662498
A; Accession: S01461
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A;Title: Cystatin. Amino acid sequence and possible secondary A;Reference number: A01274; MUID:84178305; PMID:6712597
A;Accession: A01274
                                                                                                                                                                                                                              A;Contents: annotation; disulfide bonds R;Auerswald, E.A.; Naegler, D.K.; Schulze, Eur. J. Biochem. 224, 407-415, 1994 A;Title: Production, inhibitory activity, A;Reference number: S48159; MUID:95010016; A;Accession: S48159
                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Anastasi, A.; Brown, M.A.; Kembhavi, A.A.; Nicklin, M.J.H.; Sabiochem. J. 211, 129-138, 198
Biochem. J. 211, a protein inhibitor of cysteine proteinases.
A;Tele: Cystatin, a protein inhibitor of cysteine proteinases.
A;Reference number: A37514; MUID:83256421; PMID:6409085
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A; Molecule type: protein A; Residues: 97-114 < LAB> R; Colella, R.; Bird, J.W.
                                                             FEBS Lett. 248, 162-168, 1989
A;TILLe: The cysteine proteinase
A;Reference number: S04008; MUID:
A;Accession: S04008
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A;Reference number: S01462
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A; Residues: 1-139 <COL>
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A;Accession: A34456
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A;Residues: 24-139 <AUE>
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EBS Lett. 248, 162-168, 1989
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                                                                                                                                              Henschen,
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:89252033;
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27;
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PMID:2721673
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Amino-acid sequence of
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                                                                                                                                                                                                                                                                                                               Genenger,
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                                                                                                                                              Huber,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Improved purification
                                                                                                    phosphoprotein
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                                                                                                                                              R.; Bode,
                                                                                                                                                                                                                                                                                                               G.; Machleidt,
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                                                                                                                                                                                                                              RESULT 27
PC4154
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                                                                                                                            R;Uria,
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Best Local
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A; Reference number: PC4154; MU A; Accession: PC4154
A; MOlecula +----
                                                                           Gene 169, 233-236, 19
A; Title: Alternative
                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Genome: mitochondrion C; Superfamily: fava bear C; Keywords: mitochondrion
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Reference number: A; Accession: T12144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F;30-139/Domain: cystatin homology <CYS>
F;32-139/Product: cystatin, short form #status experimental <CYSF>
F;75-80/Region: inhibitory #status predicted
F;74-104,118-138/Disulfide bonds: #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Reference number: A; Accession: JN0789
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A;Title: Isolation and characterization of the chicken cystatin-encoding gene:
a-Reference number: JN0789; MUID:93366172; PMID:8359684
                                                                                                                                     C;Date: 10-May-1996 #sequence_revision
C;Accession: PC4154
                                                                                                                                                                            Zn-alpha 2-glycoprotein - rat (fragment)
C; Species: Rattus norvegicus (Norway rat)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  F;103/Binding site: phosphate (Ser) (covalent)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Superfamily: cystatin; cystatin homology C;Keywords: cysteine proteinase inhibitor; egg white; phosphoprot. F;1-23/Domain: signal sequence #status predicted <SIG>F;1-23/Product: cystatin, long form #status experimental <CYLF>
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A;Note: authors failed to translate the codon for residue 115-Tyr C;Comment: This protein binds tightly to and inhibits a variety of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-139 <CO2>
A; Molecule type: mRNA
A; Residues: 1-164 <URI>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-143 <SCH>
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                                                                                                                J.A.; Fueyo,
                                                                                                                                                                                                                                                                                                                                       8 APVPYP 13
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129, 203-212, 199
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                                                                                                                A.; Balbin, M.; Velasco, G.; Pendas, A.M.; Lopez-Otin,
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1997
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RESULT 29
$44737

CO2C2.6 protein - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #sequence_revision 20-Feb-1995 #sequence_revision 20-Feb-1995
C;Accession: S44737
A;Reference number: S44737
A;Accession: S44737
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A;Accession: S44737
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A;Introns: 7/L; 77/2; 83/1
A;Introns: 7/L; 77/2; 83/1
C;Superfamily: class I histocompatibility antigen; immunoglobulin homology
C;Keywords: glycoprotein; immune response; immunoglobulin; liver
F;79/Binding site: carbohydrate (Asn) (covalent) #status predicted
     RESULT
AH1075
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                                                                                                                                                                                                                                                                      A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-171 <WIL>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Cloning and nucleotide sequence of the thrB gene A;Reference number: S03743; MUID:88260883; PMID:2838727 A;Accession: S03744
A;Status: not compared with conceptual translation A;Molecule type: DNA A;Residues: 1-169 <PAR>
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C; Species: Calothrix sp.
C; Date: 28-Feb-1990 #seq
C; Accession: S03744
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A;Experimental source: liver
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C;Genetics:
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b; Pred. No. 33;
0; Mismatches
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C;Accession: D81201
R;Tettelin, H.; Saunders, N.J.; Heidelberg, J.; Jeffries, A.C.; Nelson, R;Tettelin, H.; Saunders, S.L.; White, O.; Fleischmann, R.D.; Hickey, E.K.; Haft, D.H.; Salzberg, S.L.; White, O.; Fleischmann, R.D.; ri, H.; Qin, H.; Vamathevan, J.; Gill, J.; Scarlato, V.; Masignani, V.; Science 287, 1809-1815, 2000
A;Authors: Grandi, G.; Sun, L.; Smith, H.O.; Fraser, C.M.; Moxon, E.R.; A;Title: Complete genome sequence of Neisseria meningitidis serogroup B A;Reference number: A81000; MUID:20175755; PMID:10710307
                                                                                                                                             C;Species: Neisseria meningitidis
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 19-Jan-2001
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                                                                                                                                                                              cell division protein FtsQ NMB0425 [imported] - Neisseria meningitidis (strain
                                                                                                                                                                                                    D81201
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196 QWLGAP

201

Rappuoli, strain MC

MC58.

Dougherty, Pizza, M. K.E.;

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MC58

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Nakazaki, N.; Shimpo, S.;
DNA Res. 8, 205-213, 2001
A;Title: Complete Genomic
                                                                                                                                                                                                                                                                    Nature 413, 848-852, 2001
Nature 413, 848-852, 2001
A;Authors: Parry, C.; Quail, M.; Rutherford, K.; Simmonds, M.;
A;Title: Complete genome sequence of a multiple drug resistant
A;Title: Complete genome sequence of a multiple drug resistant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     probable fimbrial chain sthD [imported] - Salmonella enterica subsp. enterica C;Species: Salmonella enterica subsp. enterica serovar Typhi A;Note: this species has also been called Salmonella typhi C;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 01-Mar-2002 C;Accession: AH1075
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C;Superfamily:
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A; Molecule type: DNA
A; Residues: 1-185 < PAI
                                                                                               A; Gene:
                                                                                                           A; Experimental source: strain C; Genetics:
                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-214 < KUR>
                                                                                                                                                                                                           A; Reference number: A; Accession: AB2392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C; Genetics:
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                                                                                                                                             A;Cross-references:
                                                                                                                                                                                          A;Status: preliminary
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                                                Query Match
Best Local :
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4 QWLGAP 9
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                              Similarity 6; Conserv
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                               Conservative
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                                                                                                                              GB:BA000019; PIDN:BAB76389.1; PID:g17133827; GSPDB:GN00179
De: strain PCC 7120
                                                                                                                                                                                                                          AB1807;
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                                               12.2%;
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Pred. No.
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Pred. No.
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                                                               DВ
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                                                               Length 214;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Skelton, J
Salmonella
                                                                                                                                                                                                                                                                                                                     strain PCC
30-Jun-2002
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A;Accession: D81201
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-235 <TET>
A;Cross-references: GB:AE002398; GE
A;Experimental source: serogroup B,
C;Genetics:
A;Gene: NMB0425
C;Superfamily: cell division protei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Title: Complete DNA sequence of a serogroup A strain of A;Reference number: A81775; MUID:20222556; PMID:10761919 A;Accession: G81776
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-242 <PAR>
A;Cross-references: GB:AL162758; GB:AL157959; NID:97380672
A;Experimental source: serogroup A, Strain Z2491
C;Genetics: TICCES
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                                                       A;Gene: BMEI0125
A;Map position: I
C;Keywords: acyltransferase
                                                                                                            A;Cross-references: GB:AE008917; PIDN:AAL51307.1; A;Experimental source: strain 16M C;Genetics:
                                                                                                                                                            A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-252 <KUR>
                                                                                                                                                                                                            R;DelVecchio, V.G.; Kapatral, V.; Redkar, R.J.; Patra, G.; Mujer, C.; Los, T.; Ivanova, ; Mazur, M.; Goltsman, E.; Selkov, E.; Elzer, P.H.; Hagius, S.; O'Callaghan, D.; Letes: Proc. Natl. Acad. Sci. U.S.A. 99, 443-448, 2002
A;Title: The genome sequence of the facultative intracellular pathogen Brucella meliten: A;Reference number: AD3252; PMID:11756688
A;Accession: AH3267
                                                                                                                                                                                                                                                                                                                acetyltransferase (EC 2.3.1.-) [imported] - Brucella melitensis C;Species: Brucella melitensis C;Date: 01-Feb-2002 #sequence_revision 01-Feb-2002 #text_change C;Accession: AH3267
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C;Superfamily:
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| QEAYRR 75
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A, strain Z2491
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B, strain MC58
        Score
Pred.
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Pred. No.
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No.
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 DB
48;
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45;
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                                                                                                                                              GSPDB:GN00190
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quinolinate synthetase - Methanobacterium thermoautotrophicum (strain Delta C;Speciles: Methanobacterium thermoautotrophicum C;Speciles: Methanobacterium thermoautotrophicum C;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997 #text_change 16-Jul-1999 C;Accession: C69111
R;Smith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Al R;Smith, D.R.; Doucette-Stamm, L.A.; Deloughery, C.; Lee, H.; Dubois, J.; Al; Qiu, D.; Spadafora, R.; Vicaire, R.; Wang, Y.; Wierzbowski, J.; Gibson, R.; Qiu, D.; Spadafora, R.; Vicaire, R.; Wang, Y.; Rice, P.; Noelling, J.; Reeve, ki, S.; Church, G.M.; Daniels, C.J.; Mao, J.; Rice, P.; Noelling, J.; Reeve,
                                                                                                                                 RESULT
C69111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; He B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, n, J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R; Seeger, K.J.; Harris, D.; submitted to the EMBL Data I A; Reference number: Z21570
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T35168
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A; Residues: 1-289
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C; Superfamily:
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A; Residues: 1-264 <SEE>
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Gene: CC3203
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ce: strain A3(2)
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R;Kunst, F.; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Berter C.; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Chq A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E. Nature 390, 249-256, 1997

A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F. Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, A.; Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maueelly, M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle, R.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon, A.; Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Serou akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Togynoni, A.; Tosato, V.; Uchiyama, T.; Winters, P.; Wipat, A.; Yamannoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, R.; A; Authors: Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
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A;Title: Complete genome sequence of Methanobacterium thermoautotrophicum Delta A;Reference number: A69000; MUID:98037514; PMID:9371463
A;Accession: C69111
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
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Science 286, 1571-1577, 1999
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C; Superfamily: quinolinate synthetase A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C;Species: Bacillus subtilis
C;Date: 05-Dec-1997 #sequence_revision 05-Dec-1997
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A; Residues: 1-332 <WHI>
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C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 17-Mar-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      conserved hypothetical protein - Deinococcus radiodurans (strain C; Species: Deinococcus radiodurans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QΥ
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A; Residues: 1-304 < MTH>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Gene: DR0809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:AE001935; GB:AE000513; NID:g6458517; PIDN:AAF10387.1; PID:g64585; A;Experimental source: strain R1
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ilarity 100.0%;
Conservative (
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s; Pred. No. 57;
0; Mismatches
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                                   A;Cross-references: GB:U67524; GB:L77117; NID:g2826321; PIDN:AAB98792.1; C;Genetics: A;Map position: FOR720661-721764
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R;Bull, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, G.G.; R;Bull, C.J.; White, O.; Olsen, G.J.; Zhou, L.; Fleischmann, R.D.; Sutton, M.D.; Reinstock, K.G.; Merrick, J.M.; Gloc rson, J.D.; Sadow, P.W.; Hanna, M.C.; Cotton, M.D.; Roberts, K.M.; Hurst, M.A. Science 273, 1058-1073, 1996

A;Authors: Kaine, B.P.; Borodovsky, M.; Klenk, H.P.; Fraser, C.M.; Smith, H.O.; V.A;Title: Complete genome sequence of the methanogenic archaeon, Methanococcus jar, Reference number: A64300; MUID:96337999; PMID:8688087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypothetical protein MJ0797 - Methanococcus jannaschii
C;Species: Methanococcus jannaschii
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 21-Jul-2000
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A; Residues: 1-367 < BUL>
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A;Status: preliminary; nucleic acid sequence
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R;Cole, S.T.; Brosch, R.; Parkhill, J.; Garnier, T.; Churcher, C.; Harris, D.; Connor, R.; Davies, R.; Devlin, K.; Feltwell, T.; Gentles, S.; Hamlin, N.; Ho Rajandream, M.A.; Rogers, J.; Rutter, S.; Seeger, K.; Skelton, S.; Squares, S. Nature 393, 537-544, 1998
A;Authors: Sqares, R.; Sulston, J.E.; Taylor, K.; Whitehead, S.; Barrell, B.G. A;Title: Deciphering the biology of Mycobacterium tuberculosis from the complet A;Reference number: A70500; MUID:98295987; PMID:9634230
A;Accession: C70532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypothetical protein Rv2712c - Mycobacterium tuberculosis (strain H37RV)
C;Species: Mycobacterium tuberculosis
C;Date: 17-Jul-1998 #sequence_revision 17-Jul-1998 #text_change 22-Oct-1999
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C; Superfamily:
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A; Cross-references: GB:Z99116;
A; Experimental source: strain 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtili A;Reference number: A65580; MUID:98044033; PMID:9384377
A;Accession: E69964
A;Status: preliminary; nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                     A;Cross-references: GB:Z96072; GB:AL123456; NID:g3261793; PIDN:CAB09472.1; PID:e32110
A;Experimental source: strain H37Rv
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A; Residues: 1-352 <COL>
                                                                                                                                                                                                                                                                                      A; Status: preliminary; nucleic acid sequence not shown; translation
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                                         29 CDELAD
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o. 63;
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beta-N-acetylglucosaminylglycopeptide beta-1,4-galactosyltransferase (EC 2..N;Alternate names: glycoprotein 4-beta-galactosyltransferase; UDP-beta-1,4-C;Species: Mus musculus (house mouse)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 20-Jun-2000
                                                                      RESULT
A33396
                                                                                                                                                                                                                                                            A;Gene: Rv3726
C;Superfamily: alcohol dehydrogenase; long-chain alcohol dehydrogenase
F;21-373/Domain: long-chain alcohol dehydrogenase homology <LADH>
                                                                                                                                                                                                                                                                                                                                                                                                                      A;Authors: Sqares, R.; Sulston, J.E.; Taylor, K.; Whitehead, S.; Barrell, B.G. A;Title: Deciphering the biology of Mycobacterium tuberculosis from the complete A;Reference number: A70500; MUID:98295987; PMID:9634230
A;Accession: G70796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Species: Mycobacterium tuberculosis
c;Date: 17-Jul-1998 #sequence_revision 17-Jul-1998 #text_change 20-Jun-2000
C;Accession: G70796
R;Cole, S.T.; Brosch, R.; Parkhill, J.; Garnier, T.; Churcher, C.; Harris, D.;
Connor, R.; Davies, R.; Devlin, K.; Feltwell, T.; Gentles, S.; Hamlin, N.; H.
Rajandream, M.A.; Rogers, J.; Rutter, S.; Seeger, K.; Skelton, S.; Squares, S.
Rature 393, 537-544, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hypothetical protein 6 - Myxococcus xanthus C;Species: Myxococcus xanthus C;Date: 06-Jan-1995 #sequence_revision 06-Ja C;Accession: S32173 Ribotella, J.; Murillo, F.; Ruiz_vazquez, R. R;Botella, J.; Murillo, F.; Ruiz_vazquez, R.
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C;Genetics:
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A; Residues: 1-370 <BOT>
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                                                                                                                                                                                                                                                                                                                                                                                                        A; Status: preliminary; nucleic acid sequence not shown;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            hypothetical protein Rv3726 - Mycobacterium tuberculosis (strain H37RV)
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5. 72;
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 A;Gene: ATSP:F17M5.250
A;Map position: 4
                                 A; Experimental source: cultivar C; Genetics:
                                                                  A; Molecule type: DNA
A; Residues: 1-420 <BEV>
A; Cross-references: EMB
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                                                                                                                       A; Reference number: A; Accession: T06000
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A; Residues: 1-399 <NAK>
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A; Residues: 1-399 < SHA>
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A; Residues: 1-399 < HOL>
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aspartic proteinase homolog F17M5.250 - Arabidopsis thaliana C:Species: Arabidopsis thaliana (mouse-ear cress)
C:Date: 30-Apr-1999 #sequence_revision 30-Apr-1999 #text_charC:Accession: T06000
                                                                                                                                              submitted to the Protein Sequence A; Reference number: 215263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Keywords: glycoprotein; glycosyltransferase; hexosyltransferase; F;25-44/Domain: transmembrane #status predicted <TMM> F;113/Binding site: carbohydrate (Asn) (covalent) #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Title: Evidence for two forms of murine beta-1,4-galactosyltransferase A;Reference number: I49531; MUID:89207607; PMID:3149531 A;Accession: I49531
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: GB:D00314; NID:g220340; PIDN:BAA00216.1; R;Shaper, J.H.; Hollis, G.F.; Shaper, N.L. Biochimie 70, 1683-1688, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Title: Cloning and sequencing of a full-length cDNA of mouse N-acetylglucosamine A;Reference number: JX0041; MUID:89033997; PMID:3141392 A;Accession: JX0041
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A;Note: the authors did not translate the codon GTT for residue 139
A;Shaper, N.L.; Hollis, G.F.; Douglas, J.G.; Kirsch, I.R.; Shaper, J.H.
J. Biol. Chem. 263, 10420-10428, 1988
A;Title: Characterization of the full length cDNA for murine beta-1,4-galactosyltrans
A;Reference number: A28799; MUID:88273147; PMID:3134348
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Biochem. Biophys. Res. Commun. 162, 1069-1075, 1989
A;Title: Genomic structure of murine beta-1,4-galactosyltransferase
A;Reference number: A33396; MUID:89350913; PMID:2504153
                                                                                                                                                                                                           R; Bevan, M.; Rose, M.; Hempel, S.; Entian, K.D.; Hoheisel,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Status: preliminary; translated from GB/EMBL/DDBJA;Molecule type: mRNAA;Residues: 1-63 <RES>
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A;Accession: I49532
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erences: GB:M36289; NID:g192188; PIDN:AAA37295.1;
EMBL:AL035678; GSPDB:GN00062; ATSP:F17M5.250
e: cultivar Columbia; BAC clone F17M5
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A;Introns: 20/1; 36/2; 75/3; 180/2; 228/2; 273/3; 340/3; 382/1

Query Match

Bat Local Similarity 100.0%; Pred: No. 76;

Matches 6; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 28 COCHA: 111111

Bast Ch completed: December 4, 2002, 15:51:22

Job Line: 21 secs
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Result
No.
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Maximum
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Perfect score:
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   of hits satisfying
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JRK1_BRARE
RS21_HELPY
Y592_CHLPN
CYT_CHLPN
CYT_CHICK
YKH6_CAEEL
NADA_METTH
YOM_BACSU
Y797_METJA
B4G1_MOUSE
PURK_CORAM
CLPX_ANASP
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BINL. I SIMILAL. I SIMILAL. I SIMILAL. FAMILY. PIR; S02208; S02208. InterPro; IPR002384; G... InterPro; IPR00294; Vitk_... DR PFâm; PP00594; gla; I. DR PRINTS; PR00002; GLABONE. SMART; SM00065; GLA; I. DR PROSITE; PS00011; GLU_CARBOXYLATION; I. KW Calcium-binding; Gamma-carboxyglutamic / CALCium-binding; Gamma-carboxyglutamic / WOD_RES 16 16 GAMMA-CAP WOD_RES 20 20 GAMMA-C/ NOD_RES 23 23 GAMMA-C/ RES 23 23 GAMMA-C/ ABAB, 5292 MW; 50A' 51.0%; ' 100.0%; ' RESULT 2 OSTC_HORSE ID OSTC_HORSE P83005; Ş 밁 Query Match Best Local S Matches 25 Hug N.L., Tseng A., Chapman G.E.; "The amino acid sequence of Emu osteocalcin: gas phase sequencing o Gla-containing proteins."; Blochem. Int. 15:271-277(1987). -1- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM. -1- PTM: GAMMA-CARBOXYGLOTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE BINDING OF CALCIUM. -1- SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN FAMILY. Dromaius novae-hollandiae (Emu). Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; protein) (BGP). BGLAP. NCBI_TaxID=8790; Archosauria; Aves; Osteocalcin MEDLINE=88134266; PubMed=3501719; SEQUENCE Similarity 25; Conserv (Gamma-carboxyglutamic 11; GLU_CARBOXYLATION; 1. g; Gamma-carboxyglutamic acid; Vitamin K, GAMMA-CARBOXYGLUTAMIC ACII O 20 GAMMA-CARBOXYGLUTAMIC ACII O 20 GAMMA-CARBOXYGLUTAMIC ACII CARBOXYGLUTAMIC ACII CARBOXYLATIV. STANDARD; Palaeognathae; Score 25; Pred. No. 0; PRT; Mismatches Casuariiformes; acid-containing 49 DB 1; A .5e-21 Length 48; Indels Dromaiidae; ACID. protein) (Bone Euteleostomi; ×. Bone. 0; Gaps of.

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Best Local S
Matches 25
15-JUN-2002
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Osteocalcin
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Mammalia; Eutheria;
Cercopithecinae; Ma
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SMART; SM00069; GLA;
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Calcium-binding; G
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-!- FUNCTION: Constitutes 1-2% of the total
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(Rel. 41, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing protein) (Bone GLA-
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Gamma-carboxyglutamic acid;
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Chordata; Craniata; Vertebrata; Eutele
Primates; Catarrhini; Cercopithecidae;
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Osteocalcin
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Cancela M., Williamson M.K., Price P.A.;
Cancela M., Williamson M.K., Price P.A.;
"Anino-acid sequence of bone Gla protein from the African Xenopus laevis and the fish Sparus aurata.";
Int. J. Pept. Protein Res. 46:419-423(1995).
-i- FUNCTION: CONSTITUTES 1-28 OF THE TOTAL BONE PROTEIN.
STRONGLY TO APATITE AND CALCIUM.
-i- PTM: CANMA-CARBOXYCLUTANIC ACID RESIDUES ARE FORMED BY
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InterPro;
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Xenopus laevis (African clawed frog)
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                                                                          SEQUENCE
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InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; 91a; 1.
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Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
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                                                                                                                                                                                                                                                                                                                                       Xenopodinae;
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                   LNPDCDELADHIGFQEAYRRFYGPV
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                                             Similarity
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                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 34, Created)
(Rel. 34, Last sequence up
(Rel. 41, Last annotation
                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                     (Gamma-carboxyglutamic
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21
24
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VitK_dep_GLA.
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BY SIMILARITY.
7A9A8F63A12E6047 CRC64;
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acid-containing
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ACID.
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RESULT
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SEQUENCE
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01-AUG-1990 (Rel. 15, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Osteocalcin precursor (Gamma-Carboxygl
(Bone Gla-protein) (BGP).
                                                                                                                                              MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                      PIR; A03303; GEBO.
PIR; S12653; S12653.
InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Exthe European Bioinformatics Institute. There are no restruce by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea Bovidae; Boyinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BOVIN
                                                                                                                                                                                                                                                         SIGNAL
                                                                                                                                                                                                                                                                                                                                       PRINTS; PRO0002; GLABON SMART; SM00069; GLA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; X53699; CAA37737.1; -. EMBL; X51700; CAA35997.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Proc.
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MEDLINE=90245603; PubMed=2336375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus (Bovine).
                                                                                                                                                                                                                                     PROPEP
                                                                                                                                                                                                                                                                                             Calcium-binding;
                                                                                                                                                                                                                                                                                                                       PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Price P.A., Poser J.W., Raman N.;
"Primary structure of the gamma-carboxyglutamic acid-containing protein from bovine bone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE OF 52-100.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic Acids Res.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kiefer M.C., Saphire A.C.S., Bauer D.M., B
"The cDNA and derived amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P02820;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=77036749;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C. Natl. Acad. Sci. U.S.A. 73:3374-3375(1976). EVICTION: CONSTITUTES 1-2% OF THE TOTAL BONE STRONGLY TO APATITE AND CALCIUM.

PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING OF CALCIUM.
SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein.";
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                     Similarity
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                                                                                                                                                                                                                                                                                             Gamma-carboxyglutamic acid;
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                                                                                                                                                                                                                                                                                                                       GLU_CARBOXYLATION; 1.
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                                                                                                                         PROBABLE.
OSTEOCALCIN.
OSTEOCALCIN.
HYDROXYLATION.
HYDROXYGATION.
GAMMA-CARBOXYGLUTAMIC I
GAMMA-CARBOXYGLUTAMIC I
GAMMA-CARBOXYGLUTAMIC I
  0
                     Score 25;
Pred. No
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                                                                                  73015D1681B26219
    Mismatches
                       No.
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es of
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human
                                         Length 100
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ACID.
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RESULT 6
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InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; 9la; 1.
PRINTS; PR00002; GLABONE.
SMART; SM00069; GLA; 1.
PROSTTE; PS000011; GLU_CARBOXYLATION; 1.
Calcium-binding; Gamma-carboxyglutamic ac SIGNAL
23 PROBABLE.
PROPEP 24 51 PROBABLE.
                                                                                                                                                                                                                                                                                             EMBL; X53698; CAA37736.1; -. EMBL; X51699; CAA35996.1; -. EMBL; X04143; CAA27763.1; -. PIR; A03301; GEHU. PIR; C25471; C25471. PIR; S12652; S12652.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Celeste A.J., Buecker J.L., Kriz
"Isolation of the human gene for l
rat cDNa clones.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a centre of the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and composition of the swing statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bone. Undercarboxylation of the first glutamic acid residue.";
J. Biol. Chem. 255:8685-8691(1980).
1- FUNCTION: CONSTITUTES 1-28 OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.
1- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYGLUTAMIC RESIDUES ARE ESSENTIAL FOR THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OSTC_HUMAN STANDARD; PRT; 100 AA. P02818; P02818; 21-JUL-1986 (Rel. 01, Created) 01-AUG-1990 (Rel. 15, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Osteocalcin precursor (Gamma-carboxyglutamic (Bone Gla-protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-81006914; PubMed-6967872;
Poser J.W., Esch F.S., Ling N.C., Price P.A.;
"Isolation and sequence of the vitamin K-dependent protein from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gla protein.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                              MIM; 112260;
                                                                                                                                                                                                                                                                         Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 52-100.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "The cDNA and derived amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE=90245603; PubMed=2336375;
Kiefer M.C., Saphire A.C.S., Bauer D.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING OF CALCIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LNPDCDELADHIGFQEAYRRFYGPV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Barr
es of
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acid-containing protein)
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human
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Vitamin

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Bone; Signal.

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OSTC_CANFA
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OSTC_FELC
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DISULFID
SEQUENCE
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MOD_RES
  OSTC_CANFA
                                                                                                                                                                                                                                                                                                         MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002384; GLA_bone.
InterPro; IPR00294; VitK_dep_GLA.
Pfam; PF00594; gla; 1.
PRINTS; PR00002; GLABONE.
SMART; SM00069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-85054706; PubMed-6334077;
Shimomura H., Kanai Y., Sanada K.;
Shimomura H., Kanai Y., Sanada K.;
"Primary structure of cat osteocalcin.";
J. Biochem. 96:405-411(1984).
-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.
-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OSTC_FELCA STANDARD; PRT; 49 AA. P02821; 21-JUL-1986 (Rel. 01, Created) 21-JUL-1986 (Rel. 01, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Osteocalcin (Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOD_RES
                                                                                                                                                                                                                                                                                                                                                                      Bone.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata;
Mammalia; Eutheria; Carnivora; Fissipedia; Felidae;
                                                                                                                                                                                                                                                                                                                                                                                        Calcium-binding;
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SIMILARITY: BELONGS TO THE
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15; Conser
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25; Conser
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  STANDARD
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Gamma-carboxyglutamic acid; Vitamin K; Hydroxylation;
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Pred. No.
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                          Score 15;
Pred. No.
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
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GAMMA-CARBOXYGLUTAMIC
  PRT;
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4DF2A0A80849CB71 CRC64;
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Felis.
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21-JUL-1986 (Rel. 01, 0
15-JUL-1998 (Rel. 36, 1
15-JUN-2002 (Rel. 41, 1
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OSTC_C
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15-DEC-1998 (Rel. 37, Created)
15-DEC-1998 (Rel. 37, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
"Characterization of structural sequences gene: expression of osteocalcin by maturir hypertrophic chondrocytes in vitro.";
                                                                                             SEQUENCE FROM N.A.
STRAIN=White leghorn;
MEDLINE=95266465; Publ
                                                                                                                                                                                                                             Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                       Osteocalcin precursor (Ga (Bone Gla-protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
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InterPro; IPR000294; VitK_dep_GLA
Pfam; PF00594; gla; 1.
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Colombo G., Fanti
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Mammalia; I
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                                                       Neugebauer B.M., Moore
Hauschka P.V.;
                                                                                                                                                                                                             Archosauria;
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PROSITE; PS00011; GLU_CARBOXYLATION;
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                                                                                                                                                                       NCBI_TaxID=9031;
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Bone Miner. Res. 8:733-743(1993).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FUNCTION: CONSTITUTES 1-28 OF THE TOTAL E STRONGLY TO APATITE AND CALCIUM.

PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES A
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Eutheria;
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Gamma-carboxyglutamic acid; Vitamin K; Hydroxylation;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=8101026;
P., Yao C., Malluche H.H.;
                                                                                             orn; TISSUE=Bone; PubMed=7747623;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5524
                                                                                                                                                                                                               Neognathae;
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100.0%;
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Last annotation update)
(Gamma-carboxyglutamic
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                                                                           М.А.,
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Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
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                                                                                                                                                                                                                                   Vertebrata;
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                                                                             Gerstenfeld
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                     osteoblasts and
                                                                                                                                                                                                               Phasianidae;
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                                       the chicken osteocalcin
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Carr S.A., Haman
                                                                                                                                                                                                                                      OSTC_RAT STANDARD; PRT; 99 AA. P04640; P04640; 13-AUG-1987 (Rel. 05, Created) 13-AUG-1987 (Rel. 05, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Osteocalcin precursor (Camma-carboxyglutamic (Bone Gla-protein) (BGP).
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osteocalcin, a c
chicken bone.";
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           MEDLINE-87004555; PubMed-3019668; MEDLINE-87004555; PubMed-3019668; Celeste A.J., Buecker J.L., Kriz "Isolation of the human gene for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                    Eukaryota; Metazoa;
Mammalia; Eutheria;
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Rattus norvegicus (Rat).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PSU0011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    J.
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                                                                                                                                                  NCBI_TaxID=10116;
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THESE RESIDUES ARE F
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES BINDING OF CALCIUM.
SIMILARITY: BELONGS TO THE OSTEOCALCIN /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; U10578; AAA78809.1; A03305; GECH.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IGFQEAYRRFYGPV
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S; PR00002; GLABO
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A clones.";
5:1885-1890(1986)
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PS00011; GL
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Rodentia;
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GAMMA-CARBOXYGLUTAMIC ACII
GAMMA-CARBOXYGLUTAMIC ACII
GAMMA-CARBOXYGLUTAMIC ACII
BY SIMILARITY.

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6.6e-09;
                                     E.A., Wozney J.M.;
protein utilizing
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                                                                                                                                                                                                                                                                          acid-containing
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ACID.
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Murinae; Rat
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InterPro; IPR002384; (InterPro; IPR000294; VIPR000294; VIPR00009; GLAB; SMART; SM00069; GLA; SMART; SM00069; GLA; CRAP; 
                                                                                                 CHAIN
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                 MOD_RES
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                                                                                                                                                                                                                                  Calcium-binding;
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PIR; A32324; A32324
                                                                                                                                                                                        SIGNAL
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Signal.

; GLU_CARBOXYLATION; 1.
Gamma-carboxyglutamic

acid;

Vitamin

... ..

Hydroxylation;

PROBABLE

LA; 1. GLU_CARBOXYLATION;

GLABONE

VitK_dep_GLA GLA_bone

50 58 58

23 49 58 66

PROBABLE.
OSTEOCALCIN.
HYDROXYLATION.
GAMMA-CARBOXYGLUTAMIC

70

(BY SIMILARITY).

GAMMA-CARBOXYGLUTAMIC A
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GAMMA-CARBOXYGLUTAMIC A
(BY SIMILARITY).

ACID ACID

ACID

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EMBL; X04141; CAA27761.1; EMBL; M1177; AAA40816.1; -
EMBL; M23637; AAA41761.1; -
EMBL; M25490; AAA53380.1; -
EMBL; J04500; AAA41764.1; -
PIR; A25167; GERT.
PIR; A326471; A25471.
PIR; A31856; A31856.
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SEQUENCE FROM PROPERTY SERVICES SER
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proc. Natl. Acad. Sci. U.S.A. 86:1143-1147(18-11-710). CONSTITUTES 1-2% OF THE TOTAL B. STRONGLY TO APATITE AND CALCIUM.

-i- PTM.: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES A BINDING OF CALCIUM.

-i- SIMILARITY: BELONGS TO THE OSTEOCALCIN /
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                                                                                                                                                                                                                                                                                                                                                                                modified and this statement is not removentities requires a license agreement (Sor send an email to license@isb-sib.ch).
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MEDLINE-89251082; PubMed-2785907;
MEDCINE-89251082; PubMed-2785907;
Theofan G., Haberstroh L.M., Price P.A.;
"Molecular structure of the rat bone Gla protei identification of putative regulatory elements."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=89118266; PubMed=3265336; R.F., Roc
Yoon K., RutLedge S.J.C., Buenaga R.F., Roc
"Characterization of the rat osteocalcin ge
promoter activity by 1,25-dihydroxyvitamin
Biochemistry 27:8521-8526(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    use
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Pan L.C., Price P.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA 8:213-221(1989).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EW European Bioinformatics Institute. There are no restr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stewart C., Puchacz E., Mackowiak D., Zambetti G., Stein G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            non-profit
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nin D3.";
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RESULT
NRH3_HU
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                                      NRH3_HUMAN
Q13133;
30-MAY-2000
30-MAY-2000
15-JUN-2002
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MOD_RES
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DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=92175242; PubMed=1794506;
Virdi A.S., Willis A.C., Hauschka P.V., Triffitt J.T.;
"Primary aminoacid sequence of rabbit osteocalcin.";
Biochem. Soc. Trans. 19:373S-373S(1991).
-1- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTE STRONGLY TO APATITE AND CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing protein)
                                                                                            HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
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01-FEB-1995
                             Oxysterols
                                                                                                                                                                                                                                                                                                                Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K; Hydroxylation;
                                                                                                                                                                                                                                                                                                                          SMART; SM00069; GLA; PROSITE; PS00011; GLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9986;
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InterPro; IPR002384; GLA_bone.
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les 11; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING OF
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(Rel. 39, Created)
  (Rel. 39, Last sequence update)
  (Rel. 41, Last annotation update)
receptor LXR-alpha (Liver X receptor alpha) (Nuclear orphan
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Pred. No
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Pred. No. 0.00011;
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GAMMA-CARBOXYGLUTAMIC ACID.
GAMMA-CARBOXYGLUTAMIC ACID.
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7F18F1866D4E4388 CRC64;
                                                                                                                                                                                                                            BY SIMILARITY.
7B218871F0312253 CRC64;
                                                                                                                                                                                                                                                                                HYDROXYLATION
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NR1H3 OR
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DOMAIN
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                   PRINTS; PR00398; STRDHORMONER.
PRINTS; PR00047; STRDIDFINGER.
ProDom; PD000035; Znf_C4steroid; 1.
SMART; SM00430; HOLI; 1.
SMART; SM00399; ZnF_C4; 1.
PROSITE; PS00031; NUCLEAR_RECEPTOR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
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                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                             InterPro; IPR000536; Hormone_rec_lig.
InterPro; IPR001723; Stdhrmn_receptor.
InterPro; IPR001628; Znf_C4steroid.
                                                                                                                                                                                                                                                                                                                                                      Genew; HGNC:7966; NR1H3.
MIM; 602423; -
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HSSP; P03372;
                                                                                                                                                                                                                                                                                Pfam; PF00104; hormone_rec; Pfam; PF00105; zf-C4; 1
                                                                                                                                                                                                                                                                                                                                                                                  TRANSFAC; T02752;
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                                                                                                                                                                           linc-finger.
                                                                                                                                                                                      Receptor;
 4
                          5 WLGAPVP 11
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CHARACTERIZED BY DIRECT REPEATS OF TWO SIMILAR HEXANUCLOTIDE HALF-
SITES SPACED BY FOUR NUCLEOTIDES. LEXA PLAYS AN IMPORTANT ROLE IN
THE REGULATION OF CHOLESTEROL HOMEOSTASIS.
SUBURIT: HETERODIMER OF LARA AND RXR.
SUBURITAR LOCATION: Nuclear (Potential).
TISSUE SPECIFICITY: VISCERAL ORGANS SPECIFIC EXPRESSION. STRONG
EXPRESSION WAS FOUND IN LIVER, KIDNEY AND INTESTINE FOLLOWED BY
SPLEEN AND TO A LESSER EXTENT THE ADRENALS.
INDUCTION: BY 9-CIS RETINGIC ACID (9CRA).
SIMILARITY: BELONGS TO THE NUCLEAR HORMONE RECEPTOR FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: ORPHAN RECEPTÓR. INTERACTION WITH RXR SHIFTS RXR FR
ITS ROLE AS A SILENT DNA-BINDING PARTNER TO AN ACTIVE LIGAND-
BINDING SUBUNIT IN MEDIATING RETINOID RESPONSES THROUGH TARGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NR1 SUBFAMILY.
WLGAPVP
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no K., Ong E.S.,
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                                                                                                                                                                                       regulation; DNA-binding; Nuclear protein;
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                                                                                                                                  NUCLEAR 1
C4-TYPE.
C4-TYPE.
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Pred. No.
                                                                                                          LIGAND-BINDING (PO); A227B233DB0F8C96
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C96 CRC64;
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RESULT

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UL84_HCMVA
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DT 01-AUG
DT 01-APR
DE 65 kDa
GN UL84.
OS Human
OC Viruse
OX NCBI_T
RN GIJEN
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P29839;
01-APR-1993 (
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65 kDa early
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or send a
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                                                                                                                                                                                                                    Human cytomegalovirus (strain Towne).
Viruses; dsDNA viruses, no RNA stage;
Betaherpesvirinae; Cytomegalovirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                     He Y.S., Xu L., Huang E.S.; "Characterization of human cytomegalovirus UL84 identification of its putative protein product." J. Virol. 66:1098-1108(1992).
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01-AUG-1990 (Rel. 15, Last sequence up
01-APR-1993 (Rel. 25, Last annotation
01-APR-1993 (Rel. 25, Last annotation
05, KDa early nonstructural protein (UI
                                                                                                                                                         MEDLINE=92114132;
                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                         NCBI_TaxID=10363;
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P16727;
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S09848; WMBEDE.
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                                                                                                                                                                                                                                                                                    nonstructural
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170
182
65428
                                                                                                                                                                                                                                                                                                 25,
                                                                                                                                                       PubMed=1309892;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lacement is not removed. Usage by and for license agreement (See http://www.isb-sib
                                                                                                                                                                                                                                                                                                   Last
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                                                                                                                                                                                                                                                                                 t sequence up
t annotation
l protein (UL
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Pred. No. 2.4
0; Mismatches
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LYS-RICH (BASIC).
ASP/GLU-RICH (ACIDIC);
54AB912D6077223F CR
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                                                                                                                                                                                                                                                                                 tion update)
1 (UL84 prote
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                                                                                                         product.";
                                                                                                                                                                                                                                                                                 protein).
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RESULT 15
JAK1_BRARE
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Best Local
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012990;
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DOMAIN
SEQUENCE
                                                                                                                                                                                                                                                                                                                   Oates A.C., Brownlie A., Pratt S.J., Irvine D.V., Liao E.C., Paw Dorian K.J., Johnson S.L., Postlethwait J.H., Zon L.I., Wilks A.I "Gene duplication of zebrafish JAK2 homologs is accompanied by
                                                                                                                                                                                                                                                                                                                                                          TISSUE=Embryo;
MEDLINE=99445372;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Brachydanio rerio (Zebrafish)
Eukaryota; Metazoa; Chordata;
Actinopterygii; Neopterygii; 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last anotation update)
15-JUN-2002 (Rel. 41, Last anotation update)
Tyrosine-protein kinase Jakl (EC 2.7.1.112) (
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                                                                                                                                                                                                                                                                ÷
                                                                                                                                                                                                                                                                                       divergent embryonic expression during erythropolesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                 Conway G., Margollath A., Wong-Madden S., Roberts "Jakl kinase is required for cell migrations and a specification in zebrafish embryos."; Proc. Natl. Acad. Sci. U.S.A. 94:3082-3087(1997).
                                                                                                                                                                                                                                                                            Blood
                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 443-1153 FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Gastrula;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Actinopterygii; Ne
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nonstructural protein.
DOMAIN 9 19
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     444 YRRFYGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42
                     the blastula stage where it is distributed uniformly. Levels drop rapidly at four hours development, remain very low until 10 hours, then gradually increase from 12 hours with a rapid increase at 48 hours. At 48 hours it is concentrated in the region of the gill arches. Also present in the adult.

DOMAIN: Possesses two phosphotransferase domains. The second one probably contains the catalytic domain, while the presence of slight differences suggest a different role for domain 1.

SIMILARITY: BELONGS TO THE TYR FAMILY OF PROTEIN KINASES. JAK
                                                                                                                                                                      CATALYTIC ACTIVITY: ATP + a protein tyrosine = ADP + tyrosine phosphate.
SUBCELLULAR LOCATION: Wholly intracellular, possibly
                                                                                                                                                                                                                   od 94:2622-2636(1999).

FUNCTION: Tyrosine kinase of the non-receptor type. Appears to required in early development for specific cell migrations (epiboly), expression of homeobox protein goosecoid and formation of anterior structures.
                                                                                                                                                  associated (By similarity).

DEVELOPMENTAL STAGE: Present in the unfertilized egg
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             requires a license agreement (S
an email to license@isb·sib.ch).
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171
587 AA;
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nilarity 100.0%;
Conservative 0
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170
183
65388 Þ
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LYS-RICH (BASIC).
ASP/GLU-RICH (ACIDIC
W; 13C170E41FB3220B C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Teleostei; Ostariophysi; Cypriniform
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Danio rerio)
Craniata; Veri
                                                                                                                                                                                                                                                                                                      patterns:
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. 2.4;
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CONTAINS 1

SH2

DOMAIN

restrictions EMBL

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collaboration -

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RESULT
RS21_HR
ID RS21_OF
ID RS21
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Best Local :
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30-MAY-2000
16-OCT-2001
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Q9ZLR9;
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CONFLICT
CONFLICT
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CONFLICT
SEQUENCE
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SMART;
SMART;
SEQUENCE FROM N.A.
MEDLINE-99120557; PubMed-9923682;
Alm R.A., Ling L.-S.L., Moir D.T.
Smith D.R., Noonan B., Guild B.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HSSP;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a between the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fentitles requires a license agreement (See http://www.isb-siborsend an email to license@isb-sib.ch).
                                                                                                                                                                      30S ribosomal page RPSU OR JHP0509
                                                                                                                                                                                                                                                                                                      HELPJ
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DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProDom; PD000001; Euk_pkinase; ProDom; PD000093; SH2; 1.
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InterPro; IPR000719; Euk_pkinase.
InterPro; IPR000980; SH2.
InterPro; IPR001245; Tyr_pkinase.
pfam; PF00017; SH2; 1.
pfam; PF00069; pkinase; 2.
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                                                                                                                    Helicobacter
                                                                                                                                   Bacteria; Proteobacteria;
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ZDB-GENE-980526-142; jak1.
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SM00252; SH2; 1.
SM00219; TyrKc; 1.
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(Rel. 39, 1
(Rel. 40, 1
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770
799
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435
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AA; 1
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356 LYS-RICH (BASI
SH2 (ATYPICAL)
846 PROTEIN KINASE
1150 PROTEIN KINASE
1150 ATP (BY SIMILA
905 ATP.
1000 BY SIMILARITY.
1031 PHOSPHORYLATIO
905 K->E: LOSS OF
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S21.
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Last sequence
   Guild B.C.,
                                                                                                                                 (Campylobacter pylori J99).
a; epsilon subdivision; Helicobacter
                                                                                                                                                                                                            annotation
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T -> I (
T -> S (
S -> T (
H -> L (
L -> I (
MW; 736I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 7;
Pred. No
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SH2 (ATYPICAL).
PROTEIN KINASE 1.
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BY SIMILARITY.
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NI) I <-
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OTEIN KINASE 1.
OTEIN KINASE 2.
P (BY SIMILARITY).
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736D5263D03E7450
                      King
     deJonge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S IN EARLY DEVELOPMENT.
(IN REF. 2).
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                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                   70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
j B.L., Bro
onge B.L.,
                                                                                                                                                                                                                                                                                   AA
   Brown E.D.,
L., Carmel G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
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                     Doig
                                                                                                                                 group;
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Best Local
the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/an or send an email to license@isb-sib.ch).
                                                                                                                                                                                                  STRAIN-26695 / ATCC 700392;

MEDLINE-97394467; PubMed-9252185;

Tomb J.-F., White O., Kerlavage A.R., Clayton R.A., Sutton G.G.,

Tomb J.-F., White O., Kerlavage A.R., Clayton R.A., Sutton G.G.,

Tomb J.-F., White O., Kerlavage A.R., Klenk H.-P., Gill S., Dougherty B.A.,

Relischmann R.D., Ketchum K.A., Klenk H.-P., Gill S., Dougherty B.A.,

Nelson K., Quackenbush J., Zhou L., Kirkness E.F., Peterson S.,

Loftus B., Richardson D., Dodson R., Khalak H.G., Glodek A.,

McKenney K., FitzGerald L.M., Lee N., Adams M.D., Hickey E.K.,

McKenney K., Gocayne J.D., Utterback T.R., Peterson J.D., Kelley J.M.,

Cotton M.D., Weidman J.M., Fujii C., Bowman C., Watthey L., Wallin E.,

Hayes W.S., Borodovsky M., Karp P.D., Smith H.O., Fraser C.M.,
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01-NOV-1997 (Rel. 35, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
30S_ribosomal_protein S21.
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PROSITE; PS01181; RIBOSOMAL_S21; 1
RIBOSOMAL Protein; Complete proteom
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Nature 397:176-180(1999).
-!- SIMILARITY: BELONGS TO THE S21P FAMILY OF RIBOSOMAL PROTEINS
                                                                            This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                             pylori.";
Nature 388:539-547(1997)
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P56028;
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Pfam; PF01165; Ribosomal_S21; 1.
PRINTS; PR00976; RIBOSOMALS21.
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TIGR; HP0562; -.
InterPro; IPR001911; Ribosomal_S21.
Pfam; Pr01165; Ribosomal_S21; 1.
PRINTS; PR00976; RIBOSOMALS21.
PRODOM; PD005521; Ribosomal_S21; 1.
TIGRRAMS; TIGR00030; S21D; 1.
PROSITE; PS01181; RIBOSOMAL_S21; 1.
                                                                                                                                                                                                                                                                                                                                                               MEDLINE-20330349; PubMed-10871362; Shirai M., Kishi F., Shirai M., Hirakawa H., Kimoto M., Tabuchi M., Kishi F., Shiba T., Ishii K., Hattori M., Kuhara S., Nakazawa T.; "Comparison of whole genome sequences of Chlamydia pneumo from Japan and CWL029 from USA."; Nucleic Acids Res. 28:2311-2314(2000).
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9927W2; Q9K2D2;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Hypothetical protecin cpn0592_CP0156/CPj0592.
CPN0592 OR CP0156 OR CPJ0592.
CPN0592 OR CPU156 OR CPJ0592.
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                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
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Eisen J., Fraser C.M.;
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Kalman S., Mitchell W., Marathe R., Lammel C., Fan J., Hyman R.W., Olinger L., Grimwood J., Davis R.W., Stephens R.S.;
"Comparative genomes of Chlamydia pneumoniae and C. trachomatis.";
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15-JUL-1998 (Rel. 36, Last sequence update)
15-JUL-1998 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Cystatin (Egg-white cystatin).
Coturnix coturnix japonica (Japanese quail).
Coturnix coturnix japonica (Japanese quail).
Cutaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eukaryota; Metazoa; Neognathae; Galliformes; Phasianidae; Phasiani.
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                                                                                                                                                                        Thiol protease inhibitor;
ACT_SITE 9 9
SITE 53 57
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ProDom; PD004225; DUF37; 1.
TIGREPAMS; TIGR00278; DUF37; 1.
Hypothetical protein; Complete
                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                      TISSUE-Egg white;
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                                                                                                                                                                                                        PROSITE; PS00287;
                                                                                                                                                                                                                                                  HSSP; P01038; 1CEW.
                                                                                                                                                                                                                                                                       -!- FUNCTION: TH
CATHEPSIN B.
                                                                                                                                                                                                                                                                                            FEBS Lett.
                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID-93934;
                                                                                                                                                                                                                                      InterPro; IPR000010;
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; AP002547;
; CP0156; -.
                                                                LGAPVP
                                            LGAPVP
                                                                                                                                                                                                                  PF00031; cystatin; 
; SM00043; CY; 1.
                                                                                     Similarity 6; Conserv
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                                                                                                                                                                                                                                                                                 412:551-558(1997).
ON: THIS PROTEIN BI
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ilarity 100.0%;
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BAA98799.1; -.
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Pred. No
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48248621053A2F70 CRC64;
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CE9CA4852EA15A7C CRC64;
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Best Loc
Matches
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                         SEQUENCE OF 24-139.

MEDLINE=84178305; PubMed=6712597;

Schwabe C., Anastasi A., Crow H., I

"Cystatin. Amino acid sequence and

Biochem. J. 217:813-817(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=91347123; PubMed=1908740;
Demuynck S., Sautiere P., van Beeumen J., Dhainaut-Courtois
"Homologies between hemerythrins of sipunculids and cadmium-
metalloprotein (MP II) from a polychaete annelid, Nereis
                                                                                                    COLELIA R., Sakaguchi Y., Nagase H., Bi "Chicken egg white cystatin. Molecular and tissue distribution.";
J. Biol. Chem. 264:17164-17169(1989).
                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE-90008873; PubMed=2793849;
                                                                                                                                                                                                                                                           Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                         Cystatin precursor (Egg-white
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Metal-binding; SEQUENCE 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProDom; PD006099; Hemerythrin; 1. TIGRFAMS; TIGR00058; Hemerythrin; PROSITE; PS00550; HEMERYTHRINS; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR002063; Hemerythrin. Pfam; PF01814; Hemerythrin; 1. PRINTS; PR00186; HEMERYTHRIN. ProDom; PD006099; Hemerythrin; 1.
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PIR; S38261; S38261
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Eur. J. Biochem. 217:151-156(1993).
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Non-metallothionein
SEQUENCE
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FUNCTION: MAY ACT AS A
THEREFORE THE TOXICITY
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Nereis
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24-139
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in cadmium-binding protein (CD-BP) (MP II).
or (Sandworm) (Hediste diversicolor).
a; Annelida; Polychaeta; Palpata; Aciculata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=8223553;
                                                                                                                                                                                                                                           Neognathae;
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13454 MW; I
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THE HEMERYTHRIN FAMILY
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Pred. No. 7.7
0; Mismatches
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                                                                                                                                                                                                                                                                                      cystatin).
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F78F8DCE7F220E02 CRC64;
                                                                                                                                                                                                                                             Galliformes;
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No.
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                                                       McDonald J.K.,
                                        possible
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                                                                                                                                           cloning,
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                                          secondary
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                                          structure.";
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Brzin v.
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CHAIN
ACT_SITE
                                                                       SMART; SI PROSITE;
                                                                                                                                                                                                     PIR;
PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dieckmann T., Mitschang L., Hofmann M., Kos J., ?
Auerswald E.A., Jeanicke R., Oschkinat H.;
"The structures of native phosphorylated chicken
recombinant unphosphorylated variant in solution
J. Mol. Biol. 234:1048-1059(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Protein inhibitors of cysteine proteinases. of cystatin from chicken egg white.";
                                                                                                                                                 PDB;
                                                                                                                                                                                                                                                               entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       J. Mol. Biol. -! - FUNCTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bode W., Engh R., Musil D., Thiele U., Brzin J., Kos J., Turk V.; The 2.0 A X-ray crystal structure of cits possible mode of interaction with cits possible mode of interactio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anastasi A., Brown M.A., Kembha
Sunter D.C., Barrett A.J.;
"Cystatin, a protein inhibitor
purification from egg white, ch
                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                   the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRUCTURE BY NMR. MEDLINE=94087719; PubMed=8263912;
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                                                                                                                             InterPro;
                                                                                                                                           L; J05077; AAA4874; ADCH.
; A01274; UDCH.
; A34456; A34456.
; 1CEW; 31-JAN-94.
; 1A67; 27-MAY-98.
; 1A90; 17-JUN-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE CYSTATIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: THIS PROTEIN BINDS TIGHTLY TO THIOL PROTEASES INCLUDING FICIN, PAPAIN, AND L. ALTHOUGH ISOLATED FROM EGG WHITE,
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27-MAY-98.
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e inhibitor;
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n M.A., Kembhavi
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                                                                       CYSTATIN;
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Bonfield J., Burton J., Connell M., Copsey T., Cooper J., Coulson A
Craxton M., Dear S., Du Z., Durbin R., Favello A., Fraser A.,
Fulton L., Gardner A., Green P., Hawkins T., Hillier L., Jier M.,
Johnston L., Jones M., Kershaw J., Kirsten J., Laisster N.,
Johnston L., Jones M., Kershaw J., Kirsten J., Laisster N.,
Latreille P., Lightning J., Lloyd C., Mortinore B., O'Callaghan M.,
Parsons J., Percy C., Rifken L., Roopra A., Saunders D., Shownkeen I
Sims M., Smaldon N., Smith A., Smith M., Sonnhammer E., Staden R.,
Sulston J., Thierry-Mieg J., Thomas K., Yaudin M., Vaughan K.,
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P34274;
                                                    use by non-profit institutions as lon-
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entities requires a license agreement (S)
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                     PIR; S44737;
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15-JUN-2002
15-JUN-2002
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J. Bacteriol. 179:7135-7155(1997).
-!- FUNCTION: Catalyzes the condensation of iminoaspartate with
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                                                                                                                                                                                                                                                                                      use by non-profit institutions as long a modified and this statement is not removed. entities requires a license agreement (See lor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanobacterium thermoautotrophicum.
Archaea; Euryarchaeota; Methanobacteria;
Methanobacteriaceae; Methanothermobacter.
                                                                                                                                                                                                                       Pfam; PF02445; NadA; TIGRFAMS; TIGR00550;
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                                                                                                                                                                                                                                                                                                                                                                                                               dihydroxyacetone phosphate to form quinolinate (By similarity).
-!- PATHWAY: NAD biosynthesis; aspartate to NAMN; second step.
-!- SUBCELLULAR LOCATION: Cytoplasmic (By similarity).
-!- SIMILARITY: BELONGS TO THE QUINOLINATE SYNTHETASE A FAMILY.
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RA Kunst F. Ogsaswara N., Moszer I., Albertini A.M., Alloni G., RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S., RA Borriss R., Boursier L., Brans A., Braum M., Brignell S.C., Bron S., RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Choi S.K., Capita M., Joseph R.J., Barleto J., Errington P.T., Ra Chim S.Y., Glaser P., Goffeau A., Goliphtly E.J., Grandi G., RA Guiseppi G., Guy B.J., Haga K., Halech J., Harwood C.R., Henaut A., A Guiseppi G., Guy B.J., Haga K., Halech J., Harwood C.R., Henaut A., Joris B., Karamata D., Kasahara Y., Klein G., Krogh S., Kumano M., Moster B., Kobayashi Y., Koetter P., Koningstein G., Krogh S., Kumano M., Joris B., Karamata D., Kasahara Y., Klein C., Medigue B., Park S.H., Oldega B., Park S.H., Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M., RA Moone D., O'Railly M., Ogawa K., Ogiwara A., Oudega B., Park S.H., RA Rasport E., Puinelle B., Rapport G., Rey M., Reynolds S., RA Rescan E., Puilc P., Purnelle B., Rapport G., Rey M., Reynolds S., RA Respont A., Seror S.J., Seror P., Shin B.S., Soldo B., Sekiguchi A., Tamakoshi A., Tanaka T., Takahashi H., Takemaru K., RA Takeuchi M., Tamakoshi A., Tanaka T., Terpstra P., Tognoni A., RA Viari A., Wala K., Yanane K., Yata K., Yata
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01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Probable NADH-dependent flavin oxidoreductase
YQJM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "systematic sequencing of the 283 kb 210 degrees-232 degrees reginered the Bacillus subtilis genome containing the skin element and many sporulation genes.";
                             Hypothetical protein; Oxidoreductase; NAD; FAD; Flavoprotein; Complete proteome.
                                                                                                            SubtiList; BG11742; yqjM.
InterPro; IPR001155; Oxidore,
Pfam; PF00724; oxidored_FMN;
                                                                                                                                                                                                                                EMBL; D84432; BAA12619.1; -. EMBL; Z99116; CAB14314.1; -.
                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
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-!- SIMILARITY: TO THE OYE FAMILY OF NADH-DEPENDENT FLAVIN OXIDOREDUCTASES.
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MEDLINE=97124195; P
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Bacteria; Firmicutes;
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s. Takemaru K.-I.,
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BDC52D34236326FE CRC64
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ID B4G1_MOUSE
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MEDLINE=96337999; PubMed=8688087;

Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D.,

Sutton G.G., Blake J.A., FitzGerald L.M., Clayton R.A., Gocayne J.D.,

Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I.,

Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A.,

Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D.,

Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C.,

Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M.,

Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.;

"Complete genome sequence of the methanogenic archaeon, Methanococcus Jannaschii.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Science 273:1058-1073(1996).
-- SUBCELULAR LOCATION: Integral membrane
-- SIMILARITY: TO M.JANNASCHII MJ1507.
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01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; U67524; AAB98792.1; -. TIGR; MJ0797; -.
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Methanocaldococcaceae;
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(Rel. 35, Last sequence update)
(Rel. 40, Last annotation update)
l protein MJ0797.
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  (Rel. 14, Created)
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[3]
SEQUENCE FROM N.A.
MEDLINE-89350913; PubMed-2504153;
Hollis G.F., Douglas J.G., Shaper N.L., Shaper J.H.,
Stafford-Hollis J.M., Evans R.J., Kirsch I.R.;
Stafford structure of murine beta-1,4-galactosyltransferase.
Harduin-Lepers A., Shaper J.H., Shaper N.L.;

"Characterization of two cis-regulatory regions in the muri
1,4-galactosyltransferase gene. Evidence for a negative reg
element that controls initiation at the proximal site.";

J. Biol. Chem. 268:14348-14359(1993).

-I- FUNCTION: THE GOLGI COMPLEX FORM CATALYZES THE PRODUCTI
LACTOSE IN THE LACTATING MAMMARY GLAND AND COULD ALSO E
RESPONSIBLE FOR THE SYNTHESIS OF COMPLEX-TYPE N-LINKED
OLIGOSACCHARIDES IN MANY GLYCOPROTEINS AS WELL AS THE C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Characterization of the full length cDNA for murine beta-1,4-galactosyltransferase. Novel features at the 5'-end predict two translational start sites at two in-frame AUGS.";
J. Biol. Chem. 263:10420-10428(1988).
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Shaper N.L., Wright W.W., Sharper J.H.;
"Murine beta 1,4-galactosyltransferase: both the amounts an
structure of the mRNA are regulated during spermatogenesis.
Proc. Natl. Acad. Sci. U.S.A. 87:791-795(1990).
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                                                                                                                                                                                                                                                                                                                                                                                          Harduin-Lepers A., Shaper N.L., Mahoney J.A., Shaper J.H., "Murine beta 1,4-galactosyltransferase: round spermatid trare characterized by an extended 5'-untranslated region."; Glycobiology 2:361-368(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-89207607; PubMed-3149531;
Shaper J.H., Hollis G.F., Shaper
"Evidence for two forms of murine
based on cloning studies.";
Michimie 70:1683-1688(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE-89033997; PubMed=3141392;
Nakazawa K., Ando T., Kimura T., Narimatsu H.;
"Cloning and sequencing of a full-length cDNA of mouse acetylglucosamine (beta 1-4)galactosyltransferase.";
J. Blochem. 104:165-168(1988).
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Mammalia; Eutheria;
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15-JUN-2002 (Rel. 41, Last annotation update)
Beta-1,4-galactosyltransferase 1 (EC 2.4.1.-) (Beta-1,4-GalTase 1 (Beta-4Gal-T1) (b4Gal-T1) (UDP-galactose: beta-N-acetylglucosamine 1,4-galactosyltransferase 1) (UDP-Gal:beta-GlcNAc beta-1,4-1,4-galactosyltransferase 1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-93043838; PubMed=1384819; Harduin-Lepers A., Shaper N.L., M
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Shaper N.L., Holli
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STRAIN-BALB/c;
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.aryota; Metazoa; Chordata; Craniata; Vertebrata; I
.mmalia; Eutheria; Rodentia; Sciurognathi; Muridae;
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between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- FÜNCTION: THE CELL SURFACE FORM FUNCTIONS AS A RECOGNITION MOLECULE DURING A VARIETY OF CELL TO CELL AND CELL TO MATRIX INTERACTIONS, AS THOSE OCCURRING DURING DEVELOPMENT AND EGG FERTILIZATION, BY BINDING TO SPECIFIC OLICOSACCHARIDE LIGANDS ON OPPOSING CELLS OR IN THE EXTRACELLULAR MATRIX.
-!- CATALYTIC ACTIVITY: UDP-galactose + D-glucose - UDP + lactose.
-!- CATALYTIC ACTIVITY: UDP-galactose + N-acetyl-beta-D-glucosaminylglycopeptide - UDP + beta-D-galactosyl-1,4-N-acetyl-beta-D-glucosaminylglycopeptide.
-!- CATALYTIC ACTIVITY: UDP-galactose + N-acetyl-glucosamine - UDP + N-acetyllactossamine.
-!- CATALYTIC ACTIVITY: UDP-galactose + N-acetyl-glucosamine - UDP + N-acetyllactossamine.
-!- PATHWAY: Glycosylation.
                                                                                                                                                                                                                                                                                       EMBL;
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SUBCELULIAR LOCATION: TYPE II MEMBRANE PROTEIN. MEMBRA
FORMS IN TRANS CISTERNAE OF GOLGI (LONG AND SHORT FORN
CELL SURFACE (LONG FORM); SOLUBLE FORM IN BODY FLUIDS.
ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG/CELL SURFACE
HERE) AND A SHORT/GOLGI COMPLEX FORM; ARE PRODUCED BY
ALTERNATIVE INITIATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROTEOLYTIC PROCESSING.
SIMILARITY: BELONGS TO THE GLYCOSYLTRANSFERASE FAMILY
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D00314; BAA00216.1;

H27922; AAA58745.1;

H27917; AAA58745.1;

H27918; AAA58745.1;

H27919; AAA58745.1;

H27920; AAA58745.1;

H27921; AAA58744.1;

H27922; AAA58744.1;

H27921; AAA58744.1;

H27918; AAA58744.1;

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Glycosyltransferase; Glycoprotein; Transmembrane;
Glycosyltransferase; Glycoprotein; Transmembrane;
r; Golgi stack; Multigene family; Alternative initiation
BETA-1,4-GALACTOSYLTRANSFERASE 1, CELL
1 399 SURFACE FORM.
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                                                   BETA-1,4-GALACTOSYLTRANSFERASE 1, SOLU FORM.
FOR BETA 1,4-GALACTOSYL-TRANSFERASE 1, GOLGI COMPLEX FORM.
GYTOPLASMIC (POTENTIAL).
SIGNAL-ANCHOR (TYPE-II MEMBRANE PROTEI (POTENTIAL).
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BY SIMILARITY
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Chung S.O., Lee J.H., Lee S.Y., Lee D.S.;
Chung S.O., Lee J.H., Lee S.Y., Lee D.S.;
Genomic organization of purk and pure in Brevibacterium ammoniagene
"Genomic organization of purk and pure in Brevibacterium ammoniagene
"The state of the state of provides a clue for genomic evolution.";
FEMS Microbiol, Lett. 137:265-268(1996).

-I. FUNCTION: POSSESSES AN ATPASE ACTIVITY THAT IS DEPENDENT ON THE
PRESENCE OF AIR (AMINOTMIDAZOLE RIBONUCLEOTIDE). "THE ASSOCIATION
OF PURK AND PURE PRODUCES AN ENZAME COMPLEX CAPABLE OF CONVERTIN
AIR TO CAIR EFFICIENTLY UNDER PHYSIOLOGICAL CONDITION

(BY SIMILARITY).

-I. CAPTALYTIC ACTIVITY: 5-amino-1-(5-phospho-D-ribosyl)imidazole-4-
carboxylate = 5-amino-1-(5-phospho-D-ribosyl)imidazole-4-
-I. SUBUNIT: HOMODIMER (BY SIMILARITY).

-I. SUBUNIT: HOMODIMER (BY SIMILARITY).
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15-DEC-1998 (Rel. 37, Last sequence updat
15-JUN-2002 (Rel. 41, Last annotation upd
Phosphoribosylaminoimidazole carboxylase
(AIR carboxylase) (AIRC).
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Q44678;
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pfam; PF02222; ATP-grasp; 1.
TIGRRAMs; TIGR01161; purK; 1.
Purine biosynthesis; Lyase; Dec
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                                                                                                                                                                                                                                                                                            6 LGAPVP 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IGFQEA
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Actinobacteria; Actinobacteria (class); Actinobac
etales; Corynebacterineae; Corynebacteriaceae;
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between
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"Complete genomic sequence of the filamentous nitrogen-fixing "Complete genomic sequence of the filamentous nitrogen-fixing "Complete genomic sequence of the filamentous nitrogen-fixing "Complete genomic sequence of the filamentous nitrogen-fixing"
                                                                                                                                                                                                                                                                                                                                       P54873; Q9S707;
01-0CT-1996 (Rel. 34, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Hydroxymethylglutaryl-CoA synthase (EC 4.1.3.5) (HMG-COA (3-hydroxy-3-methylglutaryl coenzyme A synthase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chaperone; ATP-binding; Zinc-finger; Complete ZN_FING 10 35 C4-TYPE.

NP_BIND 141 148 ATP (POTENTIAL)
                                                                                                                                                                                                                                 HMGS OR MVA1 OR AT4611820 OR T26M18.30. Arabidopsis thaliana (Mouse-ear cress). Eukaryota, viridiplantae, Streptophyta; Embryo Spermatophyta; Magnoliophyta; eudicotyledons;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed
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Kaneko T., Nakamura Y., Wolk C.P.,
Watanabe A., Iriguchi M., Ishikawa
                                                                           STRAIN=cv. Landsberg erecta;
MEDLINE=96144274; PubMed=8566777;
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Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATP-dependent Clp protease ATP-binding CLPX OR CLPC OR ALR3684
                        Montamat F., Guilloton M., Karst F., "Isolation and characterization of a
                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                    NCBI_TaxID=3702;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    381 QEAYRR
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Pro; IPR00359; AAA_ATPase_centr.
Pro; IPR004487; Clpx.
PF000004; AAA; 1.
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Vs; TIGR00382; clpx; 1.
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3-hydroxy-3-methylglutaryl-coenzyme
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445 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      is not removed. Usage by and for commercial agreement (See http://www.isb-sib.ch/announce/
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A., Kawashima
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                        Delrot S.;
cDNA encoding Arabidopsis
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Gene 167:197-201(1995). [2]

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RA Modijnan P., Klein Lankhorst R., Rose M., Hauf J., Koetter P.,

RA Herneiser S., Hempel S., Feldpausch M., Lamberth S., Van den Daele H.,

RA De Keyser A., Buysshaert C., Gielen J., Villarroel R., De Clercq R.,

RA Van Montagu M., Rogers J., Cronin A., Quail M., Bray-Allen S.,

RA Clark L., Doggett J., Hall S., Ray M., Lennard N., McLay K., Mayes R.,

RA Pettett A., Rajandream M.A., Lyne M., Benes V., Rechmann S.,

RA Borkova D., Bloecker H., Scharfe M., Grimm M., Loehnert T.-H.,

RA Dose S., de Haan M., Maarse A.C., Schaefer M., Mueller-Auer S.,

RA Neumann S., Argiriou A., Vitale D., Liguori R., Piravandi E.,

RA Nessenet O., Quigley F., Clabauld G., Muendlein A., Felber R.,

RA Schnabl S., Hiller R., Schmidt W., Lecharny A., Aubourg S.,

RA Chefdor F., Cooke R., Berger C., Monfort A., Casacuberta E.,

RA Heijnen L., Schwarz S., Scholler P., Heber S., Francs P., Bielke C.,

RA Heijnen L., Schwarz S., Scholler P., Heber S., Francs P., Bielke C.,

RA Parnell L., Dedhia N., Gnoj L., Schutz K., Huang E., Spiegel L.,

RA Fishman D., Haase D., Lemcke K., Mewes H.-W., Stocker S.,

RA Fishman D., Haase D., Lemcke K., Mewes H.-W., Stocker S.,

RA Latreille P., Courtney L., Cloud J., Abbott A., Scott K., Johnson D.,

RA Kramer J., Fulton L., Mardis E., Dante M., Abu-Threideh J.,

RA Kramer J., Fulton B., Miller N., Greco T., Kemp K.,

RA Nelson J., Spieth J., Ryan E., Andrews S., Geisel C., Layman D.,

RA Nelson J., Spieth J., Ryan E., Andrews S., Geisel C., Layman D.,

RA Nelson J., Preston R., Vil D., Shekher M., Matero A., Shah R.,

RA Swaby I.K., O'Shaughnessy A., Rodriguez M., Hoffman J., Till S.,

RA Schen E., Marra M., Martienssen R., McCombie W.R.;

RT Tellon E., Martienssen R., McCombie W.R.;

RT Lanar B., Johnson A.,

RA Chen E., Mara M., Martienssen R., McCombie W.R.;
use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entities requires a license agreement (See http://www.incorsend an email to licenseas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mayer
Pohl T
                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY).
-!- CATALYTIC ACTIVITY: (S)-3-hydroxy-3-methylglutaryl-CoA + CoA acetyl-CoA + H(2)0 + acetoacetyl-CoA.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Harris B., Ansorge W., Brandt P., Grivell L.A., Rieger M. Weichselgartner M., de Simone V., Obermaier B., Mache R., Kreis M., Delseny M., Puigdomenech P., Watson M., Schmidt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -1- FUNCTION: THIS ENZYME CONDENSES ACETYL-COA WITH A FORM HMG-COA, WHICH IS THE SUBSTRATE FOR HMG-COA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              thaliana."
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Braeken M., Weltjens I., Voet M., Bastiaens I., Aert R., Defoor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Vos P., Hoheisel J., Zimmermann W., Wedler H., Ridley P.,
Langham S.-A., McCullagh B., Bilham L., Robben J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Reichert B., Portetelle D., Perez-Alonso M., Boutry M.,
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MEDLINE=20083488; PubMed=10617198;
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Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nature 402:769-777(1999)
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                                                                                                                                                                                                                                                                                              SYNTHESIS OF STEROLS AND ISOPRENOIDS.
SIMILARITY: BELONGS TO THE HMG-COA SYNTHASE FAMILY.
                                                                                                                                                                                                                                                                                                                                           PATHWAY: PRODUCTION OF MEVALONAT SYNTHESTS OF COLUMN
                                                                                                                                                                                  SWISS-PROT entry is copyright. It is produced through a ceen the Swiss Institute of Bioinformatics and the EMBL
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                                                (See http://www.isb-sib.ch/announce/
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RA MEDLINE-21;
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15-JUN-2002
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                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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I5-JUN-2002 (Rel. 41, Last sequence update)
I5-JUN-2002 (Rel. 41, Last annotation update)
Glutamyl-tRNA synthetase (EC 6.1.1.17) (Glutamate--tRNA ligase)
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EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   diphosphate + L-glutamyl-tRNA(Glu).
SUBUNIT: Monomer (By similarity).
SUBCELLULAR LOCATION: Cytoplasmic.
SIMILARITY: BELONGS TO CLASS-I AMINOACYL-TRNA SYNTHETASE FAMILY.
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PF01154; HMG_COA_synt; 1.
TE; PS01226; HMG_COA_SYNTHASE;
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IPR000924; Glu_tRNA-synt_lc
IPR001412; tRNA-synt_I.
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SEQUENCE
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PROSITE; PS50089; ZF_RING_2; 1.
Transcription regulation; Trans-acting
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J. Mol. Biol. 237:201-211(1994).
                                           DNA-binding;
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MEDLINE=94087718; PubMed=8263911;
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SMART; SM00184; RING; 1.
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Telford E.A.R., Watson M.S., McBr
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                                                                                                    Barnett M.J., Fisher R.F., Jones T., Komp C., Abola A.P.,
Barley-Hubler F., Bowser L., Capela D., Gallbert F., Gouzy J.,
Gurjal M., Hong A., Huizar L., Hyman R.W., Kahn D., Kahn M.L.,
Kalman S., Keating D.H., Palm C., Peck M.C., Surzycki R., Wells D.H.,
Yeh K.-C., Davis R.W., Federspiel N.A., Long S.R.;
"Nucleotide sequence and predicted functions of the entire
Sinorhizoblum meliloti pSymA megaplasmid.";
Proc. Natl. Acad. Sci. U.S.A. 98:9883-9888(2001).
-!- FUNCTION: NOT KNOWN; DOES NOT SEEM TO PARTICIPATE IN NOD FACTOR
SYNTHESIS BUT REQUIRED FOR NODULATION ON SOME SPECIFIC MEDICAGO
                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM STRAIN-RCR2011 / SU47;
STRAIN-RCR2011 / SU47;
MEDLINE-96111489; PubMed-8801423;
MEDLINE-96111489; PubMed-88111et F.,
                                                                                                                                                                                                                                                                         comprises nodL, noeA and noeB, three host-range genes specifically required for the nodulation of particular Medicago species."; mol. Microbiol. 17:687-699(1995).
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           the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con
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Prome J.-C., Rosenberg C.
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license agreement (See http://www.isb-sib.ch/announce,
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Curr. Top. Microbiol. Immunol. 154:125-169(1990).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
MEDLINE-87169717; PubMed-3031311;
Weston K., Barrell B.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human cytomegalovirus (strain AD169).
Viruses; dsDNA viruses, no RNA stage;
Betaherpesviinae; Cytomegalovirus.
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EMBL; X04650; CAB37121.1;
PIR; C27349; QQBEE3.
PIR; S09951; S09951.
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"Sequence of the short unique region, sh
long repeats of human cytomegalovirus.";
J. Mol. Biol. 192:177-208(1986).
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Pred. No. 30;
0; Mismatches
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RESULT 34
OS94_MOUSE
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01-FEB-1996
16-OCT-2001
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ATP-bindi
                                                                                                                                                                             ProDom; F
PROSITE;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       "A novel hspl10-related gene, apg-1, that is abundantly expressed in the testis responds to a low temperature heat shock rather than the traditional elevated temperatures.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OS94_MOUSE
P48722;
                                                                                                                                                                                                                                                EMBL;
                                                                                                                                                                                                                                                                                       entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                modified and this statement
                                                                                                                                                                                                                                                                                                                                                                                                                J. Biol. Chem. 272:2640-2645(1997).
-!- TISSUE SPECIFICITY: HIGHLY EXPRESSED IN TESTIS.
-!- INDUCTION: BY HYPEROSMOLAR SALT STRESS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;

    -i- induction: by hyperosmolar salt stress.
    -i- similarity: belongs to the heat shock protein 70 family.

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MEDLINE-97160564;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene subfamily.
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Osmotic stress protein
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MEDLINE=96218151;
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                                                      SEQUENCE
                                                                                                                                                                   PROSITE;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM
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                                                                                                                                                 ; PD000089; Hsp70; 2.
E; PS00297; HSP70_1; F
E; PS00329; HSP70_2; 1
E; PS01036; HSP70_3; 1
Similarity 6; Conserv
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STD; TISSUE=Testis;

60564; PubMed=9006898;
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1 J., Brenner B.M.,
rotein 94 (Osp94).
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100.0%;
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Last annotation update)
n 94 (Heat shock 70-related
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Sciurognathi; Muridae;
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 Mismatches
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> P (IN REF. 2).
> P (IN REF. 2).
> R (IN REF. 2).
> K (IN REF. 2).
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10 VPYPDP

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RESULT 36
MSH2_HUMAN S
ID MSH2_HUMAN S
AC P43246; 075488;
DT 01-NOV-1995 (Rel
DT 01-NOV-1995 (Rel
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Pfam; PF01326; 1
Pfam; PF02896; 1
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Yamazaki J., I
Nakamura Y., I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-MAY-2000 (Rel. 39, Created)
30-MAY-2000 (Rel. 39, Last sequence update)
16-CCT-2001 (Rel. 40, Last annotation update)
Phosphoenolpyruvate synthase (EC 2.7.9.2) (Pyruvate, water
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS00370; PEP_ENZYMES_PHOS_SITE; 1.
PROSITE; PS00742; PEP_ENZYMES_2; 1.
Transferase; Kinase; ATP-binding; Phosphorylation; Complete proteome.
MOD_RES 463 463 PHOSPHORYLATION (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities requires a license agreement (S or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Yamazaki J., Kushida N., Oguchi A., Aoki K.-I., Kubota K.,
Nakamura Y., Nomura N., Sako Y., Kikuchi H.;
"Complete genome sequence of an aerobic hyper-thermophilic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Jin-no
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PATHWAY: ESSENTIAL STEP IN GLUCONEOGENESIS WHEN PYRUVATE LACTATE ARE USED AS A CARBON SOURCE.

SIMILARITY: BELONGS TO THE PEP-UTILIZING ENZYMES FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Res. 6:83-101(1999).
CATALYTIC ACTIVITY: ATP + pyruvate + H(2)0
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K., Takahashi M., Sekine M., Baba S.-I., Ankai A.
ma A., Fukui S., Nagai Y., Nishijima K., Nakazawa
ya M., Masuda S., Funahashi T., Tanaka T., Kuchi Y
                                                                                                                                                                                                                                                                                  Similarity
6; Conser
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IPRO02192; PPDK_N_term.
0391; PEP-utilizers; 1.
1326; PPDK_N_term; 1.
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40; PEP_utilizers; 1.
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Aeropyrum.
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Garber J., Kane M.F.,
Cell 77:167-167(1994).
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Garber J., Kane M.
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"A novel germline mutation at exon
a large HNPCC Brazilian kindred.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hereditary nonpolyposis colon cancer."; cell 75:1027-1038(1993).
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Strausberg R.;
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VARIANTS HNPCC LEU-622 AND TYR-639.

MEDLINE-94084796; pubMed-8261515;

Leach F.S., Nicolaides N.C., Papadop

Parsons R., Peltomaeki P., Sistonen
                                                                                          Papadopoulos N., Lindblom A.; "Molecular basis of HNPCC: mu Hum. Mutat. 10:89-99(1997).
                                                                                                                                                                                                                                                                                                                                                                                              IDENTIFICATION OF MEDLINE=20245492;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fishel R., Ewel A., Lescoe M.K.; "Purified human MSH2 protein bin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95007585; PubMed=7923193;
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MEDLINE=97403931; P
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                                                                                                                                                                                                                            cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       for msh2 mutations."; 24:516-526(1994).
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Metazoa; Primates; (
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Lescoe M., Rao M., Copeland
Kane M.F., Kolodner R.D.;
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10:164-168(1994).
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Lewis T., Chen D.J., Cerosaletti K.M., Fournier R.E.K.,
Lewis T., Leach R.J., Naylor S.L., Weissenbach J., Meckli
Jaervinen H., Petersen G.M., Hamilton S.R., Green J., Jass
Watson P., Lynch H.T., Trent J.M., de la Chapelle A., Kinz
Yogelstein B.,
"Mutations of a muts homolog in homologer";
                                                                                                                                             VARIANT CRC TYR-506.

MEDLINE-96390800; PubMed-8797773;

Han H.-J., Yuan Y., Ku J.-L., Oh J.-H., Won Y.

Kim K.Y., Kim S., Kim C.Y., Kim J.-P., Oh N.-

Nakamura Y., Park J.-G.;

"Germline mutations of hMLH1 and hMSH2 genes

nonpolyposis colorectal cancer.";

J. Natl. Cancer Inst. 88:1317-1319(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-96305098; PubMed-8690195;
KOnishi M., Kikuchi-Yanoshita R., Tanaka K., Muraoka M., Onda Okumura Y., Kishi N., Iwama T., Mori T., Koike M., Ushio K., Nomizu S., Konishi F., Utsunomiya J., Miyaki M.;

*Molecular nature of colon tumors in hereditary nonpolyposis cancer, familial polyposis, and sporadic colon cancer.";
Gastroenterology 111:307-317(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-95243220; PubMed-7726159;
Wijnen J., Vasen H., Khan P.M., Menko F.H., van der Klift H.,
Van Leeuwen C., van den Broek M., Van Leeuwen-Cornelisse I.,
Nagengast F., Meijers-Heijboer A., Lindhout D., Griffioen G.,
Kleibeuker J., Varesco L., Bertario L., Bisgaard M.-L., Mohr
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MEDLINE-95179130; PubMed=7874129;
Mary J.-L., Bishop T., Kolodner R.D., Lipford J.R., Kane M.F.,
Mary J.-L., Torhorst J., Mueller H., Spycher M., Scott R.J.;

"Mutational analysis of the hMSH2 gene reveals a three base pair
deletion in a family predisposed to colorectal cancer development.";
Hum. Mol. Genet. 3:2067-2069(1994).
                                                      MEDLINE-96293410; PubMed-8700523;
Bubb V.J., Curtis L.J., Cunningham C., Dunlop
Morris R.G., White S., Bird C.C., Wyllie A.H.;
"Microsatellite instability and the role of hm
                                                                                                                                                                                                                                                                                                                        Moslein G., Tester D.J., Lindor N.M., Honchel R., Cunningham French A.J., Halling K.C., Schwab M., Goretzki P., Thibodeau "Microsatellite instability and mutation analysis of hMSH2 ar in patients with sporadic, familial and hereditary colorectal
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HNPCC THR-305; THR-834 AND ASN-596 DEL
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A., Kinzler K.W.,
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hMLH1
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RESULT 37
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ID SKIW H
AC Q15477
DT 01-NOV
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DE Helica
GN SKIV2L
OS HOMO s
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                                                  SKIW_HUMAN STANDARD; PRT; 1246 AA. 015477; Q12902; O15005; Q15476; Q1-NOV-1997 (Rel. 35, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Helicase SKIZW (Helicase-like protein) (HLP).
SKIVZL OR SKIZW OR DDX13 OR W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Hereditary nonpolyposis colorectal cancer with the Amsterdam criteria show extremely mismarch-repair-gene mutations."; Am. J. Hum. Genet. 61:329-335(1997).
 Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VARIANT HNPCC VAL-562.
VEDLINE-97201114; PubMed-9048925;
MEDLINE-97201116; PubMed-9048925;
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                                                                                                                                                                                                                                                                                                                                                                                                                     Beck N.E., Tomlinson I.P.M., Homfx Harocopos C.J., Bodmer W.F.; "Use of SSCP analysis to identify families fulfilling the Amsterdam Hum. Genet. 99:219-224(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          colorectal carcinoma as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WEDLINE=97242567; pubMed=9087566; Wu Y., Nystroem-Lahti M., Osinga J., Looman M.W.G., Peltomaeki F. Wu Y., Nystroem-Lahti M., Osinga J., Looman M.W., Buys C.H.C.M.; Aaltonen L.A., de la Chapelle A., Hofstra R.M.W., Buys C.H.C.M.; "MSH2 and MLH1 mutations in sporadic replication error-positive"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WEDLINE=97147120; PubMed=8993976;
Viel A., Genuardi M., Capozzi E., Leonardi F., Bellacosa Paravatou Petsotas M., Pomponi M.G., Fornasarig M., Perce Roncucci L., Tamassia M.G., Benatti P., Ponz de Leon M., Covino M., Anti M., Foletto M., Bolocchi M., Neri G.; "Characterization of MSH2 and MLH1 mutations in Italian f hereditary nonpolyposis colorectal cancer.";
                                                                                                                                                                                                                                                                                                                         Wehner M., Buschhausen L., Lamberti C.,
Propping P., Friedl W.;
"Hereditary nonpolyposis colorectal can
germline mutations in hMSH2 or hMLH1 ger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            electrophoresis.";
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                                        Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                              Hum. Mutat.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genes Chromosomes Cancer
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Wijnen J., Khan P.M., Vasen H., van
                                                                                                                                                                                                                                                                                                                                                                                            VARIANT HNPCC PHE-697, AND VARIANT ASP-322
                                                                                                                                                                                                       614 GAPVPY
                                                                                                                                                                                                                                  7 GAPVPY
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                                                                                                                                                                                                                                                           Similarity 6; Conserv
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Tsubouchi N., Yuasa Y
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                                                                                                                                                                                                                                                           Conservative
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                Primates;
                          Chordata;
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Pred. No.
               Catarrhini;
                           Craniata; Vertebrata; Euteleostomi;
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Losekoot M.,
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               Hominidae;
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Submitted (JAN-1997) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: HELICASE; HAS ATPASE ACTIVITY.
-!- SUBCELLULAR LOCATION: Nuclear (Potential).
-!- SIMILARITY: BELONGS TO THE HELICASE FAMILY. SKI2 SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Cloning SKI2.";
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Banta A.,
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SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE=95334363; PubMed=7610041;
Dangel A.W., Shen L., Mendoza A.R., Wu L.-C., Yu C.Y.;
Plangel A.W., Shen L., Mendoza A.R., Wu L.-C., Yu C.Y.;
Plangel A.W., Shen L., Mendoza A.R., Wu L.-C., Yu C.Y.;
Plangel A.W., Shen L., Mendoza A.R., Wu L.-C., Yu C.Y.;
Plangel A.W., Yu C.Y.;
                                                                                                                                                                                                             Pfam; PF00270; DEAD; 1.
Pfam; PF00271; helicase_C;
SMART; SM00487; DEXDC; 1.
SMART; SM00490; HELICC; 1.
                                                                                                                                                                                                                                                                                                                                           MIM;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the European Bioinformatics Institute. There are no rest use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entitles requires a license agreement (See http://www.isb-or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                             EMBL; Z48796; CAA88733.1; ALT_INIT.
EMBL; AF019413; AA867978.1; -.
EMBL; X98378; CAA670241; -.
EMBL; U09877; AAB52523.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (JUN-1996) to the EMBL/GenBank/DDBJ databases
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                                                                                                                                                                                                                                                                                                                                                            Genew; HGNC:10898; SKIV2L.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE-95278935; PubMed=7759100;
Lee S.-G., Lee I., Park S.H., Kan
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TISSUE-Hippocampus;
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Dankers C., Ba

Swartzell S.,
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332 339 ATP (I
423 426 DEVH I
66 120 PAWLPI
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HPTTGQILGYKEVL -> QPGCLCMVWSTQPENGRGRRIPG
LFWLSGSPSPIRETGERTPNHRPDTGLGRGLAGEHKSLGYN
LLVSSPARAW (IN REF. 4).
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T., Hood L.;
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RX MEDLINE=20196006; PubMed=10731132;
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang Q., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Ballow R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Ballow R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beeson K.Y., Benos P.V., Bermann B.P., Bhandari D., Bolshakov S.,
RA Borkova D., Botchan M.R., Bouck J., Brokstein P., Brottier P.,
RA Borkova D., Botchan M.R., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebis R., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Helman T.J., Hernandez J.R., Houck J.,
RA Hostin D., Houston K.A., Howland T.J., Wei M.-H., Ibegwam C.,
RA Harris N.L., Kalush F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Harkov P., Lei Y., Levitsky A.A., L. Li J., Li Z., Liang Y., Lin X.,
RA Merkulov G., Milshina N.V., Mobarry C., Morris J., Moshrefi A.,
RA Mount S.M., Moy M., Murphy B., Murphy L., Muzny D.M., Nelson D.L.,
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Eukaryota; Metazoa; Arthropoda; Mandibulata; Pancrustacea; Hexapoda;
Insecta; Pterygota; Neoptera; Endopterygota; Diptera; Brachycera;
Muscomorpha; Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID-7227;
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IF OR CG9623.

Droser''
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15-JUN-2002 (Rel. 41, Last annotation update)
Integrin alpha-PS2 precursor (Position-specif
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE-88080480; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-Berkeley;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
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> V (IN REF. 2).
904405C8C70621A0
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localized to muscle attachments.";
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(IN REF. 4 AND
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Na Nelson D.R., Nelson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
Palazzolo M., Pittman G.S., Pan S., Pollard J., Puri V., Reese M.G.,
Na Reinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T.,
Na Spier E., Spradling A.C., Stapleton M., Skupski M.P., Smith T.,
Na Syirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X.,
Na Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
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Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
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Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Woodage T., Wollow D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Woodage T., Wollow D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Woodage T., Wollow D., Yang S., Yao Q.A.,
Na Williams S.M., Woodage T., Woodage T., Woodage T., Yang S., Yao Q.A.,
Na Wang Z.-Y., Wang T., Woodage T., Yang T
      DOMAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HSSP; P11215; 1A8X.
FlyBase; FBgn0001250; if.
InterPro; IPR000413; Integrin_alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     modified and this statement is not removed:
entitles requires a license agreement (See
or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                     CHAIN
                                                                                                                                                                                                                                                             Signal; Repeat;
SIGNAL 1
                                                                                                                                                                                                                                                                                                                                                           SMART; SM00191; Int_alpha; 5.
PROSITE; PS00242; INTEGRIN_ALPHA;
                                                                                                                                                                                                                                                                                                                                                                                                   SMART; SM00191;
                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PRO1185; INTEGRINA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00357; integrin_A; Pfam; PF01839; FG-GAP; 5.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PTM: THE HEAVY-LIGHT CHAIN CLEAVAGE SITE IS EITHER IN 1230-1231, OR 1233-1234, OR 1243-1244.
SIMILARITY: BELONGS TO THE INTEGRIN ALPHA CHAIN FAMILY.
SIMILARITY: CONTAINS 7 FG-GAP REPEATS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MAY BE PRODUCED BY ALTERNATIVE SPLICING.

DEVELOPMENTAL STAGE: THE RELATIVE RATIO OF ISOFORM 1/PS2C ISOFORM 2/PS2M8 VARIES WIDELY DURING DEVELOPMENT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , AE003503; AAF48
A29637; A29637.
                                                                                                                                                                                                                                                                                                                                Cell adhesion;
                                                                      32
32
71244
32
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1342
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                                                                                                                                                                                                                                                                                              Alternative
                                     31
1396
71243
1396
1341
1366
1396
                                                                                                                                                                                                                                                                                              Receptor; G
ive splicing
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INTEGRIN ALPHA-PS2.
INTEGRIN ALPHA-PS2 LIGHT CHI
INTEGRIN ALPHA-PS2 LIGHT CHI
EXTRACELLULAR (POTENTIAL).
POTENTIAL.
CYTOPLASMIC (POTENTIAL).
FG-GAP 1.
                                                                                                                                                                                                                                                                                                                         Glycoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                moved. Usage by and for (See http://www.isb-sib.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   as its content
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                                                                                                                                                                                                                                                                                                                         Transmembrane
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                                                                                                                                                              CHAIN.
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MBL outstation -
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Best Local
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CONFLICT
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VARSPLIC
CONFLICT
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CARBOHYD
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DOMAIN
                                                 Krueger N.X., Streuli M., Saito H.; "Structural diversity and evolution tyrosine phosphatases." EMBO J. 9:3241-3252(1990).
                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A., AND MUTAGENESIS MEDLINE-95204468; PubMed-7896816; Pulido R., Krueger N.X., Serra-Pages "Molecular characterization of the P
                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1991 (Rel. 20, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Protein-tyrosine phosphatase delta precursor
                                                                                                                                                                                                                    alternative human isoforms.":
                                                                                                                                                                                                                               Pulldo R., Krueger N.X., Serra-Pages C., Saito H., Streuli M.;
"Molecular characterization of the human transmembrane protein-
tyrosine phosphatase delta. Evidence for tissue-specific expression of
alternative human transmembrane protein-tyrosine phosphatase delta
                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                          MEDLINE-91006018; PubMed-2170109;
                                                                                                                                               TISSUE=Placenta;
                                                                                                                                                             SEQUENCE OF 390-1912 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens (Human).
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                                                                                                                                                                                                Biol.
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CATALYTIC ACTIVITY: Protein tyrosine phosphate + H(2)0 = protein tyrosine + phosphate.
SUBCELLULAR LOCATION: Type I membrane protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              l Similarity
6; Conserv
                                                                                                                                                                                                Chem.
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Primates;
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N-SG (IN REF. 1).

SPKQVEQRR -> RSQASGATA (
MISSING (IN REF. 1).

E -> K (IN REF. 1).

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FG-GAP 7.
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Length 1912;

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SO TITLE TERMINATION OF THE TRANSPORT OF
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Pfam; PF000147; ig; 3.

Pfam; PF000102; Y_phosphatase; 2.

PRINTS; PR00014; FNTYPEIII.

PRINTS; PR00700; PRTYPHPHTASE.

SMART; SM00060; FN3; 8.

SMART; SM00060; FN3; 8.

SMART; SM00408; IGC2; 3.
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PIR; S12052; S
HSSP; P18052;
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TRANSMEM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   modified and this statement
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PTM: A CLEAVAGE OCCURS THAT SEPARATES THE EXTRACELLULAR DOME
FROM THE TRANSMEMBRANE SEGMENT.

SIMILARITY: CONTAINS 3 IMMUNOGLOBULIN-LIKE C2-TYPE DOMAINS.
SIMILARITY: CONTAINS 8 FIBRONECTIN TYPE III-LIKE DOMAINS.
SIMILARITY: CONTAINS 2 PROTEIN-TYTROSINE PHOSPHATASE DOMAINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601598;
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IPR003598;
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IPR000387; TYR_phosphatase.
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Receptor: Glycoprotein; Signal;
  1175
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299
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33; TYR_PHOSPHATASE_1;
56; TYR_PHOSPHATASE_2;
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  ξ,
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Ig_MHC.
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IG-LIKE C2-TYPE DOMAIN 1.

IG-LIKE C2-TYPE DOMAIN 2.

IG-LIKE C2-TYPE DOMAIN 3.

IGBRONECTIN TYPE-III 1.

FIBRONECTIN TYPE-III 2.

FIBRONECTIN TYPE-III 4.

FIBRONECTIN TYPE-III 5.

FIBRONECTIN TYPE-III 5.

FIBRONECTIN TYPE-III 6.

FIBRONECTIN TYPE-III 7.

FIBRONECTIN TYPE-III 7.

FIBRONECTIN TYPE-III 8.

PROTEIN-TYPOSINE PHOSPHATASE 1.

PROTEIN-TYPOSINE PHOSPHATASE 1.
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MISSING (

                                                                                                                                                                                                                                                                                   PROTEIN-TYROSINE |
PROTEIN-TYROSINE |
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                             CLEAVAGE
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     3AE8CBCD32182E26
                     ED (GLCNAC...) (POTENTIAL).

ED (GLCNAC...) (POTENTIAL).

ED (GLCNAC...) (POTENTIAL).

ED (GLCNAC...) (POTENTIAL).

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                             REDUCTION IN CLEAVAGE
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     CRC64;
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RESULT
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Best Local :
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between
the Euro
use by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-NRRL 2338;

MEDLINE-91043075; PubMed=2234082;

COTTES J., Haydock S.F., Roberts G.A., Bevitt D.J., Leadlay P.F.;

COT unusually large multifunctional polypeptide in the erythromycin-
producing polyketide synthase of Saccharopolyspora erythraea.";

Nature 348:176-178(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "6-Deoxyerythronolide-B synthase 2 from Saccharopolyspora erythraea. Cloning of the structural gene, sequence analysis and inferred domai structure of the multifunctional enzyme.";
Eur. J. Biochem. 204:39-49(1992).
-I- CATALYTIC ACTIVITY: 6 malonyl-COA + propionyl-COA = 7 COA + 6-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                biosynthesis.";
Science 252:675-679(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=91220065; Pubb
Donadio S., Staver M.:
"Modular organization
biosvnthesis.";
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                                                                        This
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-NRRL 2338;
MEDLINE-92155230; PubMed-1740151;
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NCBI_TaxID=1836;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharopolyspora erythraea (Streptomyces erythraeus).
Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae;
Actinomycetales; Pseudonocardineae; Pseudonocardiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SACER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bevitt D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM
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                                                                                                                MISCELLANEOUS: BIOSYNTHESIS OF POLYKETIDES; ACYLTRANSFERASE (I BETA-KETOACYL CARRIER PROTEIN SYNTHASE (KS), AND ACYL CARRIER PROTEIN (ACP) FOR CHAIN ELONGATION. BETA-KETOREDUCTASE (RR), DEBYDRATASE (DH), AND ENOYL REDUCTASE (ER) FOR PROCESSING OF SETA CARBON, AND THIOESTERASE (TE) FOR RELEASE AND LACTONIZAT. OF THE FULL-LENGTH CHAIN.

SIMILARITY: TO FAITY ACID SYNTHASE (FAS).
SIMILARITY: CONTAINS 2 ACYL CARRIER DOMAINS.
                                                                                                                                                                                                                                                                                                                                      MISCELLANGOUS: IN EACH ORF OF ERYA TWO MODULES ARE ENCODING FOR A FUNCTIONAL SYNTHASE SUBUNIT. THUS ER ORFS CODES FOR 6 SYNTHASE SUBUNITS. IT IS SUPPOSED SYNTHASE PARTICIPATES IN ONE OF THE SIX FAS-LIKE EL REQUIRED FOR FORMATION OF THE POLYKETIDE. MODULE 1, AND 6 PARTICIPATING IN BIOSYNTHESIS STEPS 1, 2, 3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COFACTOR: NADP; CONTAINS 2 COVALENTLY PATHWAY: COMPLEX POLYKETIDE FORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                BIOSYNTHESIS.
MISCELLANEOUS:
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COFACTOR: NADP; CONT!
                                                                                                                                                                                                                                                                                                                  RESPECTIVELY.
                                               SWISS-PROT entry is copyright. It is produced through sen the Swiss Institute of Bioinformatics and the El
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er M.J., McAlpine of
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required
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1 6 (EC 2.
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InterPro; IPR002198; ADH_short.
InterPro; IPR001277; Ac_transferase.
InterPro; IPR001794; Ketoacyl-synt.
InterPro; IPR000794; Ketoacyl-synt.
InterPro; IPR0010380; Ppantne_attach.
InterPro; IPR001031; Thioesterase.
Pfam; PF00106; adh_short; 1.
Pfam; PF00106; detoacyl-synt; 2.
Pfam; PF00598; Acyl_transf; 2.
Pfam; PF00698; Acyl_transf; 2.
Pfam; PF00698; Acyl_transf; 2.
Pfam; PF00975; Thioesterase; 1.
Pfam; PF00975; Thioesterase; 1.
Pfam; PF00975; Thioesterase; 1.
Pfam; PF00975; Thioesterase; 2.
PROSITE; PS00012; PHOSPHOPANTETHEINE; 2.
PROSITE; PS00606; B_KETOACYL_SYNTHASE; 2.
PROSITE; PS0075; ACP_DOMAIN; 2.
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EMBL; M63677; AAA26495.1;
EMBL; X62569; CAA44449.1;
HSSP; P00101; ICCH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Phosphopantetheine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transferase;
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       Multifunctional
PHOSPHOPANTETHEINE (B'S -> SA (IN REF. 2).
MISSING (IN REF. 2).
A -> R (IN REF. 2).
P -> R (IN REF. 2).
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BETA-KETOACYL REDUCTASE 2
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BETA-KETOACYL SYNTHASE 2.
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YBAI_SCHPO
                                                                                                   RA Wood V. Gwilliam R., Rajandream M.A., Lyne M., Lyne R., Stewart A.,
RA Sgouros J., Peat N., Hayles J., Baker S., Basham D., Bowman S.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Gonlies M., Connor R., Cronnin A., Davis P., Feltwell T., Fraser A.,
RA Gonlies S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA James K., Jones L., Jones M., Leather S., McDonald S., McLean J.,
RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Oliver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Skelton J., Simmonds M., Squares R., Squares S., Stevens K.,
RA Taylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,
RA Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller Auer S.,
RA Gabel C., Fuchs M., Fritzc C., Holzer E., Moestl D., Hilbert H.,
RA Goffeau A., Cadieu E., Dreano S., Gloux S., Lelaure V., Mottier S.,
RA Galibert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Galibert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Daga R.R., Cruzado L., Jimenez J., Sanchez M., del Rey F., Benito J.,
RA Dominguez A., Revuelta J.L., Moreno S., Armstrong J., Forsburg S.L.,
RA Cerrutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,
RA Shpakovski G.V., Ussery D., Barrell B.G., Nurse P.;
RT The genome sequence of Schizosaccharomyces pombe.";
RT Nature 415,871-880(2002).
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      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hypothetical SPBC119.18.
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15-JUN-2002
15-JUN-2002
                                                                                   Nature 415:871-880(2002).
-!- SIMILARITY: BELONGS TO THE UPF0203 (15E1.1) FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Schizosaccharomyces pombe (Fission yeast).
Eukaryota; Fungi; Ascomycota; Schizosaccharomycetes;
Schizosaccharomycetales; Schizosaccharomycetaceae;
Schizosaccharomyces.
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T -> S (IN REF. 2).

D -> DADD (IN REF. 2).

QSP -> AVA (IN REF. 2).

G -> G (IN REF. 2).

LA -> S (IN REF. 2).

NA -> TH (IN REF. 2).

A -> G (IN REF. 2).

P -> A (IN REF. 2).

RRAEGRAA -> AVKAVRR (IN REF. 1).

C -> E (IN REF. 2).

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Archaea; Euryarchaeota; Halobacteria;
Halobacteriaceae; Halobacterium.
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Zhang Q.-H., Ye M.,
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MEDLINE-99097250; PubMed-9878551;

Loeffen J.L.C.M., Triepels R.H., van den Heuvel L., Schuelke M.,

Loeffen J.L.C.M., Triepels R.H., van den Heuvel L., Schuelke M.,

Buskens C.A.F., Smeets R.J.P., Trijbels J.M.F., Smeitink J.A.M.;

"CDNA of eight nuclear encoded subunits of NADH:Ubiquinone

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
NADH-ubiquinone oxidoreductase AGGG subunit, mitochondrial
(EC 1.6.5.3) (EC 1.6.99.3) (Complex I-AGGG) (CI-AGGG).
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Eukaryota; Metazoa;
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Lu G., Zhong M., Xu X.-R.,
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         Zhao M., Zhao C.-J., F
X.-R., Han Z.-G., Zhang
Gu J., Chen S.-J., Chen
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Hypothetical 12.1 k
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Q09238;
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                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                           Favello T.;
Submitted (JUL-1995) to the EMBL/GenBank/DDBJ databases.
--- SIMILARITY: SOME, TO THE C-TERMINAL OF C.ELEGANS T19D12.1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAEEL
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TRANSIT 1 33 MITOCHONDRION (BY SIMILARITY).
CHAIN 34 105 NADH-UBIQUINONE OXIDOREDUCTASE AGGG
SUBUNIT.
SEQUENCE 105 AA; 12058 MW; 5698368608CDC16F CRC64;
                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
Rhabditidae; Peloder
                                                                                                                                                                                                                                                                                                                                                                     Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
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Genome Res. 10:1546-1560(2000).
                                                                                                                                                                                                                                              SEQUENCE FROM N.A. STRAIN-Bristol N2;
                                                                                                                                                                                                                                                                                                         NCBI_TaxID=6239;
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or send an email to license@isb-sib.ch).
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CATALYTIC ACTIVITY: NADH + acceptor = NAD(+) + reduced acceptor.
SUBUNIT: COMPLEX I IS COMPOSED OF ABOUT 40 DIFFERENT SUBUNITS.
SUBCELLULAR LOCATION: Mitochondrial inner membrane; matrix side.
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FUNCTION: TRANSFER OF ELECTRONS FROM NADH TO THE RESPIRATORY
CHAIN. THE IMMEDIATE ELECTRON ACCEPTOR FOR THE ENZYME IS BELIEVED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TO BE UBIQUINONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 5; Conserv
                     an email to license@isb-sib.ch).
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protein C18H9.6 in chromosome II.
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Matches 5
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Copyright (c) 1993 - 2002 Compugen Ltd.
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sp_rvirus:*
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O33303 equine herp
O69068 pseudomonas
O80500 agrobacteri
O90514 halobacteri
O90540 pseudomonas
O96187 homo sapien
O9118h2 baboon cyto
O91cj5 rhesus cyto
O8qs15 chimpanzee
O17301 caenorhabdi
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A Wezeman F.H., Moskal S.F. II.;

T "Canine Osteoblast Gene Expression.";

Canine Osteoblast Gene Expression.";

Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases.

R EMBL; AF205942; AAR18456.1; -.

R InterPro; IPR002384; GLA_bone.

R InterPro; IPR000294; VitK_dep_GLA.

R Pfam; PF00594; 91a; 1.

R Pfam; PF00594; 91a; 1.

R Pfam; PF00594; GLABONE.

R PAINT; SM00069; GLA; 1.

R SMART; SM00069; GLA; 1.
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Q9TT28;
Q1-MAY-2000 (TrEMBLrel. 13, Created)
Q1-MAY-2000 (TrEMBLrel. 13, Last sequence update)
Q1-JUN-2001 (TrEMBLrel. 17, Last annotation update)
Q1-JUN-2001 (TrEMBLrel. 17, Last annotation update)
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
NCBI_TaxID=9615;
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CDELADHIGFQEA
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"Cloning of mouse genes related to repairing
of the irradiated mice by treatment with the
the same strain."
Int. J. Radiat. Biol. Relat. Stud. Phys. Chem
EMBL; AF240166; AAK43731.1; -.
InterPro; IPR003006; Ig_MHC.
Int. J. Radiat. Biol. Relat. EMBL; AF240167; AAK43732.1; InterPro; IPR003598; Ig_c2.
                                                                     Cui D., Zeng G., Yan X., Li X., "Cloning of mouse genes related of the irradiated mice by treat
                                                                                                                                                                                                                                                                   STRAIN=BALB/C;
PubMed=11819679;
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the repair of
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SMART; SM00408; IGc2; 1.
Immunoglobulin domain.
SEQUENCE 170 AA; 17978
SEQUENCE FROM N.A.
STRAIN-CV. NIPPONBARE;
Sasaki T., Matsumoto T., Yaman
"Oryza sativa nipponbare(GA3)
clone:P0026F07.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Shinohara N., Demura T., Fukuda H.; "Isolation of a vascular cell wall-specific monoclonal antibody recognizing a cell polarity by using a phage display subtraction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CN 8.
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STRAIN-BALB/C; TISSUE-SPLEEN;
MEDLINE-20183931; PubMed-10706631;
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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BAA88633.1;
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InterPro; IPR001841; Znf_ring. Pf00097; Zf-C3HC4; 1.
SMART; SM00184; RING; 1.
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01-JAN-1998
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01-AUG-1998
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01-DEC-2001
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Zinc-fing
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InterPro; IPR002965; P_rich_extensn.
PRINTS; PR01217; PRICHEXTENSN.
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Telford E.A., Watson M.S., Perry J., Cullinane
"The DNA sequence of equine herpesylrus-4.";
J. Gen. Virol. 79:1197-1203(1998).
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                                                   HTXI.
Pseudomonas stutzeri (Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
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                Pseudomonas.
                               Bacteria; Proteobacteria;
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1 RING-TYPE ZINC FINGER.
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                               as perfectomarina).
subdivision; Pseudomonadaceae;
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MEDLINE=2160851; PubMed=11743194;

MEDLINE=2.608551; PubMed=11743194;

A GOOdner B., Hinkle G., Gattung S., Miller N., Blanchard M.,

A Qurollo B., Goldman B.S., Cao Y., Askenazi M., Halling C., Mull.

A Houmiel K., Gordon J., Vaudin M., Iartchouk O., Epp A., Liu F.,

A Wollam C., Allinger M., Doughty D., Scott C., Lappas C., Markel

A Flanagan C., Crowell C., Gurson J., Lomo C., Sear C., Strub G.,

A Cielo C., Slater S.;

T "Genome sequence of the plant pathogen and biotechnology agent

T Agrobacterium tumefaciens C58.";

EMBL; AE007985; AAK86310.1;

C SEQUENCE 275 AA; 29911 MW; CF140634E33C0322 CRC64;
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01-JUN-2002
01-JUN-2002
                                                                01-MAR-2001 (TrEMBLrel. 16, Crea 01-MAR-2001 (TrEMBLrel. 16, Last 01-MAR-2002 (TrEMBLrel. 20, Last 3-hydroxyacyl-CoA dehydrogenase. HBD1 OR VNG0681G.
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J. Bacteriol. 180:5547-558(1998).
-!- FUNCTION: BELONGS TO AN OPERON INVOLVED IN HYPOPHOSPHITE
                            Halobacterium sp. (strain NRC-1).
Archaea; Euryarchaeota; Halobacteria;
                                                                                                                                                                                                   Q9HRI4;
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Rhizobiaceae group;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 275;
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Halobacterium

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ID Q915C4
ID Q915C4
Q91
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Best Local S
Matches 7
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Best Local S
Matches 7
                                                                                                      opportunistic pathogen.";
Nature 406:959-964(2000).
-!- SIMILARITY: TO THE LYSR FAMILY OF TRANSCRIPTION
EMBL; AE004516; AAG04204.1; -.
InterPro; IPR000847; HTH_Lysr.
InterPro; IPR001919; Lysr_subst.
IPF00126; HTH_L'; L'
Pfam; PF00126; HTH_L'; L'
Pfam; PF001466; L'ysr_substrate; 1.
PRINTS; PR00039; HTHLYSR.
PRINTS; PR00039; HTHLYSR.
PROSITE; PS00044; HTH_LYSR.
PROSITE; PS00044; HTH_LYSR.
PROSITE; PS00043; Transcription regulation; Complete pro
SEQUENCE 317 AA; 35990 MM; CC73FDB4A3473960 CR0
                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.

STRAIN-ATCC 15692 / PAO1;

MEDLINE-20437337; PubMed-10984043;

MEDLINE-20437337; PubMed-10984043;

Stover C.K., Pham X.-Q.T., Erwin A.L., Mizoguchi S.D., Warrener P.,

Hickey M.J., Brinkman F.S.L., Hufnagle W.O., Kowalik D.J., Lagrou M.

Garber R.L., Goltry L., Tolentino E., Westbrock-Wadman S., Yuan Y.,

Brody L.L., Coulter S.N., Folger K.R., Kas A., Larbig K., Lim R.M.,

Smith K.A., Spencer D.H., Wong G.K.-S., Wu Z., Paulsen I.T.,

Smith K.A., Spencer D.H., Hancock R.E.W., Lory S., Olson M.V.;

"Complete genome sequence of Pseudomonas aeruginosa PAO1, an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ng W.V., Kennedy S.P., Mahairas G.G., Berquist B., Pan M.,
Shukla H.D., Lasky S.R., Baliga N.S., Thorsson V., Sbrogna J.,
Swartzell S., Weir D., Hall J., Dahl T.A., Welti R., Goo Y.A.,
Leithauser B., Keller K., Cruz R., Danson M.J., Hough D.W.,
Maddocks D.G., Jablonski P.E., Krebs M.P., Angevine C.M., Dale H.,
Isenbarger T.A., Peck R.F., Pohlschroder M., Spudich J.L., Jung K.-H.,
Alam M., Freitas T.M., Liang P., Riley M., Hood L., DasSarma S.;
"Genome sequence of Halobacterium species NRC-1.";
"Genome sequence of Halobacterium species NRC-1.";
"Froc. Natl. Acad. Sci. U.S.A. 97:12176-12181(2000).
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Q915C4;
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MEDLINE=20504
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Probable transcriptional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
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Pfam; PF02737; 3HCDH_N; 1.
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InterPro; IPR000205; NAD_binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=287;
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; Mismatches
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5. 9.3;
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Best Local S
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InterPro; IPR000923; BlueCu_1.
InterPro; IPR000536; HOLTMONE_IEC_119.
InterPro; IPR000828; Znf_C2H2.
InterPro; IPR001628; Znf_C2H2.
InterPro; IPR001628; Znf_C4*teroid.
Pfam; PF00104; hormone_rec; 1.
Pfam; PF00105; Zf-C4; 1.
ProDom; PD000035; Znf_C4*teroid; 1.
PROSITE; PS00105; COPPER_BLUE; UNKNOWN_1.
PROSITE; PS00031; NUCLEAR_RECEPTOR; UNKNOWN_1.
PROSITE; PS00028; ZINC_FINGER_C2H2_1; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                         01-DEC-2001
01-DEC-2001
01-MAR-2002
                                                                                                                                                                                                                                                                          baboon cytomegalovirus.
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
Betaherpesvirinae; Cytomegalovirus.
NCBI_TaxID=120505;
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Q918H2;
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Blewett E., Rogers P., Kravitz R., Barry P.;
"The UL82 gene families of baboon (BaCMV) and rhesus cytomegalovirus (rhesus cytomegalovirus) each contain 4 genes and are closely related to the UL82 family (3 genes) of human cytomegalovirus.";
Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AF411694; AAL10297.1; -
InterPro; IPR000637; AT_hook.
Pfam; PF02178; AT_hook; 1.
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01-DEC-2001 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
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                                                                                                                                                                                                               SEQUENCE FROM N.A. STRAIN=OCOM4-37;
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SEQUENCE
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MBLrel. 19, Last sequence up
MBLrel. 21, Last annotation
for MGC:10474).
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19,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
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Pred. No.
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Best Local S
Matches 7
      Query Match
Best Local Similarity
                                  SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

Davison A.J., Akter P., Dolan A., Wright K.M., Alcendor D.J., Hayward G.S., McGeoch D.J., Alcendor D.J., Hayward G.S., McGeoch D.J., "The human cytomegalovirus genome revisited."; Submitted (FEB-2002) to the EMBL/GenBank/DDBJ (EMBL; AF480884; AAM00773.1; -

SEQUENCE 573 AA; 63004 MW; B56C2AD35F76D02
                                                                                                                                                                                                                                                    01-JUN-2002
01-JUN-2002
01-JUN-2002
                                                                                                                                                                                                                                                                                             Q8QS15;
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01-DEC-2001
01-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "The UL82 gene families of baboon (baboon cytomegalovirus) and rhesus cytomegalovirus (RhCMV) each contain 4 genes and are closely related to the UL82 family (3 genes) of HCMV.";
Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                         chimpanzee cytomegalovirus. Viruses; dsDNA viruses, no RNA stav
Betaherpesvirinae; Cytomegalovirus
NCBI_TaxID=188763;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rhesus cytomegalovirus
Viruses; dsDNA viruses,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Simian cytomegaloviruses pathogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-68-1;
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NCBI_TaxID=103930;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted
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AF078698; AAL08223.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 100 7; Conservative
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100.0%; Pr
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       14.3%;
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no RNA stage;
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Pred. No.
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       Score
Pred.
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                                                                                                                                                                                                        stage;
                                                    B56C2AD35F76D020 CRC64;
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4 7;
No.
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 DB
17;
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. 14;
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AC Q8
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                    01-NOV-1996
01-NOV-1996
01-DEC-2001
                                                                 Q88224
Q88224;
    01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-DEC-2001 (TrEMBLrel. 19, Nucleocapsid protein (Fragme
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Query Match
Best Local
                                             Matches
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                                                                                                                  Pfam; PF00550; pp-binding; 5
PROSITE; PS00075; ACP_DOMAIN
PROSITE; PS00606; B_KETOACYI
PROSITE; PS00120; LIPASE_SEE
PROSITE; PS00012; PHOSPHOPAN
PROSITE; PS000142; ZINC_PROTE
                                                                                                                                                                                                                   Pfam;
Pfam;
                                                                                                                                                                                                                                          Pfam;
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Q17301
                                                                                             Phosphopantetheine. SEQUENCE 4767 AA;
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01-NOV-1996 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                               Submitted
                                                                                                                                                                                                                                                                                                                                                                                                     Waterston R.;
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                                                                                                                                                                                                                                                                   InterPro;
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HSSP; P14687; 1AMU.
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DELADHI
                      DELADHI
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                                                                                                                                                                          pF00109; ketoacyl-synt; 2.
pF002801; ketoacyl-synt_C;
pF00550; pp-binding: E
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                                                                                                                                                                                                      PF00501; AMP-binding;
PF00668; Condensation;
PF00109; ketoacyl-synt
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                                            Similarity 7; Conserv
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IPR000794;
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                                            Conservative
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41
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                                                                                                                                                                                                                                                                                                                                                                             Genome Sequencing Project.";
996) to the EMBL/GenBank/DDBJ
                                                                                                                               ACP_DOMAIN; 5.

B.KETOACYL_SYNTHASE; UNKNOWN_2.

LIPASE_SER; UNKNOWN_1.

PHOSPHOPANTETHEINE; UNKNOWN_2.
                                                                                                                   ZINC_PROTEASE;
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Caenorhabditis.
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Last annotation updat
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PRELIMINARY;

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rel. 01, Created)
rel. 01, Last sequencel. 19, Last anno

annotation sequence

update)

update)

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RESULT 18
Q8RZM7
ID Q8RZM
AC Q8RZM
DT 01-JC
DT 01-JC
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Matches 6
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Q82160; Q82161;
Q1 NOV-1996 (TrEMBLrel. 01, Create
01-NOV-1996 (TrEMBLrel. 01, Last s
01-JUN-2001 (TrEMBLrel. 17, Last a
Nucleocapsid protein (Fragment).
unidentified.
 Q8RZM7;
Q8RZM7;
01-JUN-2002
01-JUN-2002
                                                                                                                                                           NON_TER
NON_TER
SEQUENCE
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EMBL; U33259; AAC36797.1;
InterPro; IPR002214; Hanta_nucleocap.
Pfam; PF00846; Hanta_nucleocap; 1.
ProDom; PD001501; Hanta_nucleocap; 1.
                                                                                                                                                                                                                              Henderson W.W., Monroe M.C., St Jeor S Peters C.J., Nichol S.T.; Peters C.J., Nichol S.T.; "Naturally occurring Sin Nombre virus Virology 214:602-610(1995).

EMBL; U45015; AAB48145.1; -.

EMBL; U45016; AAB48146.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sin Nombre virus.
Viruses; ssRNA negative-strand viruses; Bunyaviridae; Hantavirus.
NCBI_TaxID-37705;
[1]
                                                                                                                                                                                                                                                                                     MEDLINE-96130200; PubMed-8553562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        North America."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=96036486; PubMed=7483255;
Rowe J.E., St Jeor S.C., Riclo J., Otteson
Henderson W.W., Ksiazek T.G., Rollin P.E.,
"Coexistence of several novel hantaviruses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. STRAIN=NV WA-R199;
                                                                                                                                                                                                  Pfam; PF00846; Har
ProDom; PD001501;
                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                  STRAIN-SIN NOMBRE/CA MO-R159, AND SIN NOMBRE/NV NY-R301;
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                                                                                                                                Similarity
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56
56 AA;
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AA;
  (TrEMBLrel. (TrEMBLrel.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                              PRELIMINARY;
                                                                                                                      Conservative
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Hanta_nucleocap;
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100.0%; Pr
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Pred. No.
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. 29;
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Nichol S.T.;
in rodents indigen
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Q27316
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Matches 6
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Best Local
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Q27316;
Q1-NOV-1996 (TrEMBLTel. C
01-NOV-1996 (TrEMBLTel. C
01-JUN-2002 (TrEMBLTel. C
Q9VUS3;
01-MAY-2000
01-MAY-2000
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B1168H06.7. protein.
B1168H06.7. Oryza sativa (japonica cultivar-group).
Eukaryota; Viridiplantae; Streptophyta; Eml
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EIG71EA OR L7
Drosophila me
Eukaryota; Me
Pterygota; Ne
Ephydroidea;
                                                                                                                                                                                                                                                                                                                                                  Pfam; PFO
SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (AUG-1995) to the EMBL; U24095; AAA65109.1; -. EMBL; U23836; AAA74176.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=CANTON-S;
Wright L.G., Chen T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
STRALN=OREGON-R: TISSUE-SALIVARY GLAND;
Wright L.G., Chen T., Thummel C.S., Guild G.M.;
Submitted (APR-1995) to the EMBL/GenBank/DDBJ d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases. EMBL; AP003563; BAB89169.1; -. SEQUENCE 99 AA; 10491 MW; 257199E32438B5E6 CRC64;
                                                               Q9VUS3
                                                                                                                                                                                                                                                                                                                                                                                           FlyBase; FBgn0004588; Eig71Ea.
InterPro; IPR003475; Insect_Unk.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=7227;
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NCE 100
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Similarity 100.0%;
6; Conservative (
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6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Neoptera; Endopterygota; Diptera; ; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  melanogaster (Fruit fly).
Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
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                                                                 PRELIMINARY;
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                                                                                                                                                                                                                                                                                                                                                     11895 MW;
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                                                                                                                                                                                                                                                               Score 6; DB 5; Pred. No. 47; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last annotation update)
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Last annotation update)
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(TrEMBLrel.

13, 13,

Created)
Last sequence update)

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RESULT
041032
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DT 01
DT 01
DT 01
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                         041032;
041032;
01-JAN-1998
01-JAN-1998
01-DEC-2001
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FlyBase; FBgn0004588; Eig71Ea
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Etukaryota; Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
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EIG71EA OR CG16931.
Drosophila melanoga
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     protein.
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                               (TrEMBLrel.)
(TrEMBLrel.)
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19,
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Q41658
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Matches
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Best Local
                                      01-NOV-1996
01-NOV-1996
01-MAR-2002
                                                                             Q41658
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MEDLINE-20013326; PubMed-10544099;
Kaiser A., Vollmert M., Tholl D., (
Lisec A.D., Nickerson K.W., Van Et
"Chlorella virus PBCV-1 encodes a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
MEDLINE=98072962; PubMed=9356347;
Li Y., Lu Z., Sun L., Ropp S., Kut
"Analysis of 74 kb of DNA located
chlorella virus PBCV-1 genome.";
                            01-NOV-1996 (TREMBLER) 01, Cre
01-NOV-1996 (TREMBLER) 01, Las
01-NAR-2002 (TREMBLER) 20, Las
NADH ubiquinone oxidoreductase
                                                                                                                                                                                                         Gurnon J.R., Graves
Submitted (DEC-2000)
EMBL; U42580; AAC969
SEQUENCE 136 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PBCV-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Paramecium bursaria chlorella virus 1
Viruses; dsDNA viruses, no RNA stage;
                    Vicia faba (Broad bean).
                                                                     Q41658;
                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A. Van Etten J.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Virology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Virology 237:360-377(1997).
                                                                                                                                                                                                                                                                  Submitted
                                                                                                                                                                                                                                                                                                                 SEQUENCE FRO
Graves M.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted
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                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                   Submitted
                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Characterization of a beta-1,3-glucanase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Virology
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                                                                                                 22
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6; Conserv
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(MAY-1999)
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                                                                                                                                                                                                                                                                                                                                                                                  J.L.;
(MAY-1997)
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Viridiplantae;
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FC-2000) to the
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PubMed-11021991;
PubMed-11021991;
PubMed-11021991;
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 Streptophyta; Embryophyta; Tracheophyta;
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Last sequence update)
Last annotation updat
ase subunit 5 (nad5).
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Phycodnaviridae; Chlorovirus
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by chlorella virus
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STRAIN-AD23/N FERTILE LINE;

Scheepers D.G.J.M., Luo H., Boutry M.;

Scheepers D.G.J.M., Luo H., Boutry M.;

The straint mitochondrial transcripts of a broad bean line are "variant mitochondrial transcripts of a broad bean line are "variant mitochondrial transcripts of a broad bean line are "variant mitochondrial transcripts of a broad bean line are "variant mitochondrial transcripts".
                                                                                                                                                                                                                                                                    Mycobacteium avium subsp. paratuberculosis.";
Clin. Diagn. Lab. Immunol. 6:146-148(1999).
EMBL; X68102; CAA48222.1; -.
                                                                                                                                                                                                                                                                                                                                                                                     Gilot P., De Kesel M., Coene M., Mac
"Isolation and sequencing of the gen
kilodalton protein of Mycobacterium
J. Bacteriol. 175:4930-4935(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1998 (TREMBLrel. 08, Created)
01-NOV-1998 (TREMBLrel. 08, Last sequence update)
01-NOV-1998 (TREMBLrel. 21, Last annotation update)
01-JUN-2002 (TREMBLrel. 21, Last annotation update)
Hypothetical 18.1 kDa protein (Fragment).
Mycobacterium paratuberculosis.
Bacteria, Firmicutes; Actinobacteria; Actinobacteridae;
Actinomycetales; Corynebacterineae; Mycobacteriaceae; M
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SEQUENCE 143 AA; 15455 MW;
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MEDLINE=93328703; 1
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NCBI_TaxID=1770;
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llarity 100.0%;
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                                                                                                                                                                                                         18052 MW;
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Pred. No
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                      Q8ZOS9 PRELIMINARY;
Q8ZOS9;
01-MAR-2002 (TIEMBLIEL 20,
01-MAR-2002 (TIEMBLIEL 20,
01-JUN-2002 (TIEMBLIEL 21,
Putative fimbrial subunit.
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SEQUENCE FROM N.A.
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SEQUENCE FROM N.A.
STRAIN-IT2 / SGSC1412 / ATCC 700720;
STRAIN-IT2 / SGSC1412 / ATCC 700720;
MEDLINE-21534948; PubMed-11677609;
MCClelland M., Sanderson K.E., Spieth J., Clifton S.W., //
MCClelland M., Sanderson K.E., Spieth J., Clifton S.W., //
Courthey L., Porwollik S., Ali J., Dante M., Du F., Hou
Leonard S., Nguyen C., Scott K., Holmes A., Grewal N., M
Leonard S., Nguyen C., Scott K., Holmes A., Grewal N., M
Leonard S., Nguyen C., Scott K., Holmes A., Grewal N., M
Market M., Stoneking T., Nha
Market M., Ma
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01-MAR-2002
01-MAR-2002
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ORF 169.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hypothetical protein; Complete SEQUENCE 185 AA; 19337 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nature 413:852-856(2001).
EMBL; AE008916; AALI33407.1; -.
InterPro; IPR000259; Fimbrial.
Pfam; PF00419; Fimbrial; 1.
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"Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi CT18.";

Nature 413:848-852(2001).

EMBL; AL627284; CAD03423.1;

Prempt Proposition Complete Standing Proposition Complete Propositio
                                                                                                                     Matches
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Q9F419;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-20431891; PubMed-10974106; Bull T.J., Hermon Taylor J., Pavlik I., El-Zaatari F., Tiza: "Characterization of IS900 loci in Mycobacterium avium subs: paratuberculosis and development of multiplex PCR typing."; Microbiology 146:2185-2197(2000).

-i- SIMILARITY: BELONGS TO THE TETR/ACRR FAMILY OF TRANSCRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                     Pfam; PF00440; tetR; 1. PRINTS; PR00455; HTHTETR.
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NCBI_TaxID=1770;
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                                                                                                                                                                                                                                                DNA-binding; Transcription re
SEQUENCE 198 AA; 21553 MW;
                                                                                                                                                                                                                                                                                                                                                                      EMBL; AJ250023; CAC10267.1; InterPro; IPR001647; HTH_Tet
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larity 100.0%;
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9425 MW; 836A2100EA432234 CRC64;
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MW; 06786AEE1165F302 CRC64;
                                                                                                              Score 6; DB 2; Pred. No. 86; 0; Mismatches
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Best Local :
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01-MAR-2002 (TrEMBLrel. 21, L
01-JUN-2002 (TrEMBLrel. 21, L
Probable riboflavin synthase
RIBE OR RSC0714 OR RSO5139.
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Q8Y1H6;
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Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sas
Watanabe A., Iriguchi M., Ishikawa A., Kawashima
Kishida Y., Kohara M., Matsumoto M., Matsuno A.,
Nakazaki N., Shimpo S., Sugimoto M., Takazawa M.,
Yasuda M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Anabaena sp. (strain PCC Bacteria; Cyanobacteria; NCBI_TaxID=103690;
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01-MAR-2002 (TIEMBLIEL 20, L
01-JUN-2002 (TIEMBLIEL 21, L
Hypothetical protein All4690.
                                                                                                                                                                                                                                                                                                                 Salanoubat M., Genin S., Artiguenave F., Gouzy J., Mang
Arlat M., Billault A., Brottier P., Camus J.C., Cattoli
Chandler M., Choisne N., Claudel-Renard C., Cunnac S.,
Gaspin C., Lavie M., Moisan A., Robert C., Saurin W., S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ralstonia solanacearum (Pseudomonas solanacearum).
Bacteria; Proteobacteria; beta subdivision; Ralstonia
                                                                                 Transferase; Complete proteome. SEQUENCE 217 AA; 22663 MW;
                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-21681879; PubMed-11823852;
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MEDLINE-97294510; PubMed-9150266; Peschel A., Schnell N., Hille M., Entian K.D., Gotz F.; Peschel A., Schnell N., Hille M., Entian K.D., Gotz F.; "Secretion of the lantibiotics epidermin and gallidermin: analysis of the genes gdmT and gdmH, their influence on epproduction and their regulation by EpiQ."; Mol. Gen. Genet. 254:312-318(1997).
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EMBL; AL646061; CAD14480.1; -.
EMBL; AL64rola protein, Complete proteome.
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Shinose M., Takahashi Y., Horikawa H., Nakazawa
Kikuchi H., Shiba T., Sakaki Y., Hattori M.;
"Genome sequence of an industrial microorganism
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CG9066 protein
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MEDLINE-2022556; PubMed-10761919;
Parkhill J. Achtman M., James K.D., Bentley S.D., Churcher C.,
Klee S.R., Morelli G., Basham D., Brown D., Chillingworth T.,
Davies R.M., Davis P., Devlin K., Feltwell T., Hamlin N., Holroyd
Jagels K., Leather S., Moule S., Mungall K., Quail M.A.,
Rajandream M.A., Rutherford K.M., Simmonds M., Skelton J.,
Whitehead S., Spratt B.G., Barrell B.G.;
"Complete DNA sequence of a serogroup A strain of Neisseria
meningitidis 22491.";
Nature 404:502-506(2000).
EMBL; AL162758; CAB85277.1; -.
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Drosophila melanogaster (Fruit : Eukaryota; Metazoa; Arthropoda;
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Bacteria; Proteobacteria; beta subdivision; Neisseriaceae; Neisseria.
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RA Adams M.D., Celniker S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang O., Chen L.X.,
RA Sutton G.G., Wortman J.R., Yandell M.D., Zhang O., Chen L.X.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfeiffer B.D.,
RA Brandon R.C., Boyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Aphayani A., An H.-J., Andrews Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Bayraktaroglu L., Beasley E.M.,
RA Beesson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gerbolos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Cherry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebolos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
RA Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Dodson K.J., Devilla C.C., Ferrae C., Ferriera S., Fleischmann W.,
RA Dodson K.J., Brangelista C.C., Ferrae C., Ferriera S., Fleischmann W.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Gubart M.M., Glasser K.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibegwam C.,
RA Lasko P., Lei Y., Karpen G.H., Ke Z., Kennisson J.A., Ketchum K.A.,
RA Kinmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Lasko P., Malsh F., Karpen G.H., Ke Z., Kennisson J.A.,
RA Nount S.M., Wolson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Palazzolo M., Ra Kingel Y., Marchel R., Sche
                                                                                                                                                                                                                                                                                                   Gonzalez M., Chavez C., Dorsett V., Farfan D., Frise E., George R., Guarin H., Li P., Liao G., Miranda A., Mungall C.J., Nunco J., Pacleb J., Paragas V., Park S., Phouanenavong S., Wan K. Yu C., Lewis S.E., Rubin G.M., Celniker S.; Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases. EMBL; AE003500; AAF48534.1; -. EMBL; AF061163; AAF48534.1; -. EMBL; FBgn0030703.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T., Spier E., Spradling A.C., Stapleton M., Strong R., Sun E., Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X., Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng Y., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.; "The genome sequence of Drosophila melanogaster."; Science 287:2185-2195(2000).
                                                                                                                                                                                                                                                                         Pfam;
                                                                                                                                                                                                                                                                                        FlyBase; FBgn0030703; CG9066.
InterPro; IPR001199; Cyt_B5.
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                                                                 115
36
                                                                                                            43 RRFYGP
                                                                    RRFYGP
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n. 1e+02;
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Q8YJF8

Q8YJF8

PRELIMINARY;

PRT;

252 AA

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RESULT 37
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X MEDLING-20020109; PubMed-11756688;

A DelVecchio V.G., Kapatral V., Redkar R.J., Patra G., Mujer C.,

A Ivanova N., Anderson I., Bhattacharyya A., Lykidis A., Reznik A., Jablonski L., Larsen N., D'Souza M., Bernal A., Mazur M., Golt Selkov E., Elzer P.H., Hagius S., O'Callaghan D., Letesson J.-

Selkov E., Kyrpides N., Overbeek R.;

The genome sequence of the facultative intracellular pathogen Brucella melitensis.";

The proc. Natl. Acad. Sci. U.S.A. 99:443-448(2002).

REMBL; AE009455; AAL51307.1; -.

REMBL; AE009455; AAL51307.1; -.

REMBL; AE009455; AAL51307.1; -.

REMBL; AE009455; AAL51307.1; -.
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Best Local
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01-MAR-2002 (TrEMBLrel. 20
01-MAR-2002 (TrEMBLrel. 20
01-JUN-2002 (TrEMBLrel. 21
                                                                                                                                                                                                                                                                                                                            ul-JUN-2002 (TrEMBLrel. 08, Last sequence update)
Putative transcriptional regulator.
SC06669 OR SC5A7.19C.
                                             MEDLINE-97000351; PubMed-8843436; MEDLINE-97000351; PubMed-8843436; Redenbach M., Kieser H.M., Denapaite D., Kinashi H., Hopwood D.A.; "A set of ordered cosmids and a detailed the 8 Mb Streptomyces coelicolor A3(2) ch Mol. Microbiol. 21:77-96(1996).
                                                                                                                                                                                                                                                                                         Streptomyces coelicolor.

Streptomyces coelicolor.

Bacteria; Firmicutes; Actinobacteria; Actinobacterida

Bacteria; Firmicutes; Streptomycetaceae;
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STRAIN-A3(2) / M145;
Bentley S.D., Chater
                                                                                                                                                                                     STRAIN-A3(2);
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Submitted (JUL-1998)
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STRAIN-16M / ATCC
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Brucellaceae; Brucella.
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                          SEQUENCE FROM
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Conservative (
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Cerdeno-Tarraga
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Pred. No. 1.1
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                                                              chromosome
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 Challis G.L.,
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                                                                        physical map
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1., Goltsman E.,
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RC STRAIN=C2A / ATCC 35395 / DSM 2834;

RX MEDLINE-21929760; PubMed-11932238;

RX MEDLINE-21929760; PubMed-11932238;

RX MEDLINE-21929760; PubMed-11932238;

RA FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,

RA FitzHugh W., Calvo S., Engels R., Smirnov S., Atnoor D., Brown A.,

RA Allen N., Naylor J., Stange-Thomann N., DeArellano K., Johnson R.,

RA Linton L., McEwan P., McKernan K., Talamas J., Tirrell A., Ye W.,

RA Zimmer A., Barber R.D., Cann I., Graham D.E., Grahame D.A., Guss A.M.,

RA Hedderich R., Ingram-Smith C., Kuettner H.C., Krzycki J.A.,

RA Leigh J.A., Li W., Liu J., Mukhopadhyay B., Reeve J.N., Smith K.,

RA Springer T.A., Umayam L.A., White O., White R.H., de Macario E.C.,

RA Springer T.A., Umayam L.A., White O., White R.H., de Macario E.C.,

RA Ferry J.G., Jarrell K.F., Jing H., Macario A.J.L., Paulsen I.,

RA Pitchett M., Sowers K.R., Swanson R.V., Zinder S.H., Lander E.,

RA Metcalf W.W., Birren B.;

RA Metcalf W.W., Birren 
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Matches 6
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01-JUN-2002 (
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MA2005.
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Interpro; IPRO00285; HTH_ICLR.
Pfam; PF01614; IclR; 1.
SMART; SM00346; HTH_ICLR; 1.
DNA-binding; Transcription reg
SEQUENCE 264 AA; 28066 MW;
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EMBL; AL031107; CAA19948.1;
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Nature 417:141-147(2002).
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Harper D., Bateman A., Brown S., Chandra G., Chen C.W., Collins M.,
Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth S.,
Huang C.-H., Kieser T., Larke L., Murphy L., Oliver K., O'Neil S.,
Rabbinowitsch E., Rajandream M.A., Rutherford K., Rutter S.,
Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor K.,
Warren T., Wietzorrek A., Woodward J., Barrell B.G., Parkhill J.,
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Archaea; Euryarchaeota; Me
Methanosarcinaceae; Methan
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266 YRRFYG
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8C2058B9831AA22A CRC64;
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RESULT 39
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GN Rhizc
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Proc. Natl. Acad. Sci. U.S.A. 98:9877-9882(2001).

EMBL; AL591791; CAC47152.1; -.

Interpro; IPR000515; BPD_transp.

Pfam; PF00528; BPD_transp; 1.
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01-JUN-2002
                                    Yamazaki M., Thorne L., Mikolajczak M., Armentrout TLinkage of genes essential for synthesis of a poly in Sphingomonas strain S88.";
J. Bacteriol. 178:2676-2687(1996).
EMBL; U51197; AAC44077.1;
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5. 1.2e+02;
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                                                                                                                                      Pollock
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Best Local
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FRONSTEE, TO4821; TE_BZIP.

FRONSTEE, PRODORS. TO THE BZIP FAMILY.

TRANSFAC; T04821; TE_BZIP.

Ffam; PF00170; bZIP; 1.

SMART; SM00338; BRLZ; 1.

PROSITE; PS00034. TO---
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DNA-binding; Nuc
SEQUENCE 318 1
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01-MAY-2000
01-JUN-2002
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01-JUN-2002
01-JUN-2002
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NCBI_TaxID-4530;
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                                        Pterygota; Metazoa; Arthropoda; Traheata; Heterygota; Neoptera; Endopterygota; Diptera; Ephydroidea; Drosophilidae; Drosophila. NCBI_TaxID=7227;
STRAIN=BERKELEY;
Stapleton M., Br
Champe M., Chave
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STRAIN-CV. NIPPONBARE;
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                                                                                                                                        Q8SY52;
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                                                                                                                                                                                                                                                                                                                                                                   T., Kowyama Y., Hattori T.;
ZIP factor, TRAB1, interacts with VP1
ced transcription.";
Natl. Acad. Sci. U.S.A. 96:15348-153
                                                                                                                                                                                                APVPYP 212
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 L., Agbayani
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Farfan D., 1
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RESULT
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Q9RW60;
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                                                                                                                                                                                                                                                                                                                                                                        "Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1.";
Science 286:1571-1577(1999).
EMBL; AE001935; AAF10387.1; -.
TIGR; DR0809; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              White O., Elsen J.A., Heidelberg J.F., Hickey E.K., Peterson J.D. Dodson R.J., Haft D.H., Gwinn M.L., Nelson W.C., Richardson D.L., Woffat K.S., Qin H., Jiang L., Pamphile W., Crosby M., Shen M., Vamathevan J.J., Lam P., McDonald L., Utterback T., Zalewski C., Makarova K.S., Aravind L., Daly M.J., Minton K.W., Fleischmann R.I. Ketchum K.A., Nelson K.E., Salzberg S., Smith H.O., Venter J.C., Fraser C.M.;
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Hypothetical protein; Complete
SEQUENCE 332 AA; 35374 MW;
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Deinococcaceae; Deinococcus.
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AY075334; AAL68200.1; -
NCE 329 AA; 33199 MW; 62EE9C1B7EC093
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01EC6E2ADC10E220 CRC64;
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                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
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/cgn2_6/ptcdata///paa//ISO86_COMB.pep: *
/cgn2_6/ptcdata///paa//ISO89_COMB.pep: *
/cgn2_6/ptcdata///paa//ISO89_COMB.pep: *
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/cgn2_6/ptcdata///paa//ISO9_COMB.pep: *
/cgn2_6/ptcdata///paa//ISO90_COMB.pep: *
/cgn2_6/ptcdata///paa//ISO90_COMB.pep: *
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/cgn2_6/ptodata/1/paa/US081_COMB.pep:*
/cgn2_6/ptodata/1/paa/US082_COMB.pep:*
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/cgn2_6/ptodata/1/paa/US084_COMB.pep:*
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/cgn2_6/ptodata/1/paa/US07_COMB.pep:*
SUMMARIES
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25	25	25	25	25	46	Query Score Match
51.0	51.0	51.0	51.0	51.0	93.9	Query Match
49	49	47	46	42	49	Query Match Length DB ID
13	_	20	20	14	13	DB
13 US-08-973-667-1	PCT-US02-22821-108	US-09-657-276-1093	US-09-657-276-1095	US-09-036-085-5	US-08-973-667-4	DB ID
Sequence 1, Appli	Sequence 108, App	Sequence 1093, Ap	Sequence 1095, Ap	Sequence 5, Appli	Sequence 4, Appli	Description

Sequence 9, Appli	0-955-965-60-50 61			+	
7		1 5	20.4	10	4 4
	US-08-844-462-	; L		10	4
6, A	-US98-17919	13	20.4	10	42
	PCT-US02-30412-2	13	20.4	10	41
2205,	1 PCT-US02-30312-2205	13	20.4	10	40
	1 PCT-US00-19843-14	13	20.4	10	39
Sequence 2182, Ap	US-10-253-493-	76	2	11	38
Sequence 2182, Ap	26 US-10-253-471-2182	76	22.4	11	37
Э	23 US-09-962-756-2182	76	22.4	11	36
	1 PCT-US02-30412-2182	76	۲	11	35
2182, A	1 PCT-US02-30312-2182	76	2	11	34
2134,	26 US-10-253-493-2134	74	22.4	11	33
2134,	26 US-10-253-471-2134	74	2	11	32
e 2134,	23 US-09-962-756-2134	74	22.4	11	31
2134,	1 PCT-US02-30412-2134	74	2	11	30
2134,	1 PCT-US02-30312-2134	74	22.4	11	29
22,		43	22.4	11	28
6	US-08-973-	13	2	11	27
109	us-09-657-	13	26.5	13	26
e 44,	US-09	13	6.	13	25
12,	US-08-246-626-12	15	8	14	24
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Sequence 3, Appli	PCT-US01-12010-3	100	1.	25	14
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	US-08-246-626-5	98	1	25	12
5, Appli	US-07-717-811A-	98	1	25	11
equence 108	US-10-197-954-	49	_	25	10
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ALIGNMENTS

nce 4, Application US/08973667 RAL INFORMATION: PLICANT: Kimura, Shunpei PLICANT: Kimura, Terutoshi PLICANT: Kimura, Terutoshi PLICANT: MOTIMOTO, Shigeto TLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY MBER OF SEQUENCES: 6 RERESPONDENCE ADDRESS: ADDRESSEE: NIXON & VANDERHYE P.C. STREET: 1100 North Glebe Rd. 8th floor GCITY: Arlington STATE: VA COUNTRY: USA ZIP: 22201-4741 MPUTER READABLE FORM: MEDIUM TYPE: Floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS OPERATION NUMBER: US/08/973,667 FILING DATE: 10-DEC-1997 CLASSIFICATION DATA: APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997 TOR APPLICATION DATA:

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US-09-036-085-5
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; OTHER INFORMATION: /product= "Gla"
US-08-973-667-4
                                                                                                                                                                                                                                                                                                                                                    Sequence 5, Application US/09036085
GENERAL INFORMATION:
APPLICANT: Gary S. Stein et al.
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: PROVISIONAL APPLICATION SERIAL NO. 60/039,839
FILING DATE: March 6, 1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: 42
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-816-4000
                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
                                                                                                                  CURRENT APPLICATION DATA
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ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                    APPLICANT: Gary S. Stein et al.

TITLE OF INVENTION: Gene Therapy Using Bone Marrow Transplants Transfected With
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ORIGINAL SOURCE:
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LOCATION:
                                                                                 APPLICATION NUMBER: FILING DATE:
                                                                                                                              COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: /product= "Gla"
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                                                                    CLASSIFICATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY:
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                                                                                                                                                                                                                                                            Boston
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100.0%; Pred. No.
Live 0; Mismatc
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                                                                                                                               Version #1
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; OTHER INFORMATION: Description of Artificial Sequence: Synthetic; OTHER INFORMATION: Peptide US-09-657-276-1095
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                                                                             US-09-657-276-1093
                                                                                           RESULT 4
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                                             Sequence 1093, Application US/09657276 GENERAL INFORMATION:
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Best Local Similarity
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                 APPLICANT:
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Best Local Similarity
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PRIOR FILING DATE: 1999-09-10
PRIOR APPLICATION NUMBER: 60/1
PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
PRIOR APPLICATION NUMBER: 60/134,406
PRIOR FILING DATE: 1999-05-17
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TITLE OF INVENTION:
TITLE OF INVENTION:
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INFORMATION FOR SEQ
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                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                     LENGTH: 46
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LENGTH: 42 amino acids
                                                                                                                                         22 LNPDCDELADHIGFQEAYRRFYGPV 46
                                                                                                                                                         25 LNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                   25;
                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Thibaudeau, Karen
VENTION: PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
VENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
Bridon, Dominique
Ezrin, Alan
                                 Conjuchem, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Milner, Peter
Holmes, Darren
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Ezrin, Alan
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100.0%;
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Pred. No.
                                                                                                                                                                                                   Mismatches
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1e-19;
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9.2e-20;
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APPLICANT:

APPLICANT: APPLICANT: APPLICANT:

Thibaudeau, Karen Milner, Peter Holmes, Darren

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; LENGTH: 49
; TYPE: PRT
; ORGANISM: HOMO S
PCT-US02-22821-108
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US-08-973-667-1
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Sequence 1, Application US/08973667 GENERAL INFORMATION:
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/314,123
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR FILING DATE: 2002-03-11
NUMBER OF SEQ ID NOS: 149
SOFTWARE: FastsEQ for Windows Version 4.0
SEQ ID NO 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: PCT/US02/22821
CURRENT FILING DATE: 2007-07-16
PRIOR APPLICATION NUMBER: 60/306,019
PRIOR FILING DATE: 2001-07-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Koister, Hubert
APPLICANT: Siddiqi, Suhaib
APPLICANT: Little, Daniel
TITLE OF INVENTION: Capture Compounds, Collections Thereof
TITLE OF INVENTION: And Methods For Analyzing The Proteome And Complex
TITLE OF INVENTION: Compositions
FILE REFERENCE: 24743-2305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/153,406
PRIOR FILING DATE: 1999-09-10
PRIOR APPLICATION NUMBER: 60/159,783
PRIOR APPLICATION NUMBER: 60/159,783
PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
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CURRENT FILING DATE: 2000-09-07
PRIOR APPLICATION NUMBER: 60/134,406
PRIOR FILING DATE: 1999-05-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE: 1999-10-1
NUMBER OF SEQ ID NOS: 1617
SOFTWARE: PATENTIN VEr. 2.1
EQ ID NO 1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: HK Pharmaceuticals, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILE REFERENCE:
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                                                                                                          23
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
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                                                                                                                                                                                                    51.0%; Score 25; 100.0%; Pred. No.
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1e-19;
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RESULT 7
US-08-973-667-2
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                                                                                                                                                               Sequence 2,
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Best Local :
                                                                                                                                                                                                                                                                                                                               Matches
                                              APPLICANT: Sakakibara,
APPLICANT: Kimura, Ter
APPLICANT: MOTIMOTO,
TITLE OF INVENTION: AK
NUMBER OF SEQUENCES: (
                                                                                                                                            GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION FOR SEQ ID NO:
CORRESPONDENCE ADDRESS:
ADDRESSEE: NIXON & VANDERHYE P.
STREET: 1100 North Glebe Rd. E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: JP 9-
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Crawford, Arthur R.
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APPLICATION NUMBER: JP 8-88608
FILING DATE: 10-APR-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Morimoto, Shigeto
TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
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                                                                                                                                                                                                                                                                                       25 LNPDCDELADHIGFQEAYRFYGPV 49
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nes 25; Conserv
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OTHER INFORMATION: /product= "Gla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: amino acid
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 25
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/0 FILING DATE: 10-DEC-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
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                                                                                                                                                             Application US/08973667
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1100 North Glebe Rd. 8th floor
                                                                                                           Kimura, Terutoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            703-816-4100
                                                                                                                             Sakakibara, Shunpei
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                                                                       ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                              51.0%; Score 25; DB 13; 100.0%; Pred. No. 1.1e-19;
                                                                                      Shigeto
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US-08-973-667-3
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                                                                                                                                                                                           Sequence 3, Application US/08973667 GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                        Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP97/01246
APPLICATION NUMBER: PCT/JP97/01246
APPLICATION NUMBER: PCT/JP97/01246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: /product= "Gla" FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 9
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 10-APR-PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                           APPLICANT: MORIMOTO, Shigeto
TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6
                                                                                                                                                             APPLICANT:
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                                                                                              CORRESPONDENCE ADDRESS:
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OTHER INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 423-43
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                  STATE:
                                                 CITY:
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                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
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                                                                              ADDRESSEE:
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22201-4741
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                                                               1100 North Glebe Rd.
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                                                                               NIXON & VANDERHYE P.C
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100.0%;
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                             8th floor
                                                                                                                                                                                                                                                                                                                                                                                    DB 13;
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Best Local Similarity
"~+~hes 25; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 2, Application US/09462931 GENERAL INFORMATION:
                            FILE REFERENCE: Isolated osteocalcin fragments CURRENT APPLICATION NUMBER: US/09/462,931
CURRENT FILLING DATE: 2000-01-18
PRIOR APPLICATION NUMBER: PCT/F198/00550
PRIOR FILLING DATE: 1998-06-24
PRIOR FILLING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: FI 973371
PRIOR APPLICATION NUMBER: FI 973371
PRIOR FILING DATE: 1997-08-15
PRIOR FILING DATE: 1997-08-15
                                                                                                                                                                                                                                                                                                                                                  APPLICANT: VNNEN, Kalervo
APPLICANT: PETTERSSON, Kim
TITLE OF INVENTION: Isolated osteocalcin fragments
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: HELLMAN, Jukka
APPLICANT: KKTNEN, Sanna-Maria
APPLICANT: KARP, Matti
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SOFTWARE: PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY: lin MOLECULE TYPE: ORIGINAL SOURCE:
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LENGTH: 49 amino acids
TYPE: amino acid
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NAME: Crawford, Arthur R.
REGISTRATION NUMBER: 25,3
REFERENCE/DOCKET NUMBER:
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APPLICATION NUMBER: PCT/:
FILING DATE: 10-APR-1997
PRIOR APPLICATION DATA:
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MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: /UJ U-
TELEPHONE: /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  25 LNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25 LNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: JP 9 FILING DATE: 27-FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: JP 8 FILING DATE: 10-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 10-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KARP, Matti
LTVGREN, Timo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51.0%; Scilarity 100.0%; F
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Modified-site
17
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10-DEC-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product= "Gla"
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
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TITLE OF INVENTION: Capture Compounds, Collections Thereof
TITLE OF INVENTION: And Methods For Analyzing The Proteome And Complex
TITLE OF INVENTION: Compositions
FILE REFERENCE: 24743-2305
CURRENT APPLICATION NUMBER: US/10/197,954
CURRENT FILING DATE: 2002-07-16
PRIOR APPLICATION NUMBER: 60/306,019
PRIOR FILING DATE: 2001-07-16
PRIOR FILING DATE: 2001-07-16
PRIOR FILING DATE: 2001-08-21
PRIOR FILING DATE: 2001-08-21
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR FILING DATE: 2002-03-11
NUMBER OF SEQ ID NOS: 149
SOPTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 108
                                                                                                                                                                                                                                                             RESULT 11
US-07-717-811A-5
; Sequence 5, Application US/07717811A
; GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; LENGTH: 49
; TYPE: PRT
; ORGANISM: Homo Sapien
US-10-197-954-108
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US-10-197-954-108
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, NAME/KEY: peptide
; LOCATION: (1)..(49)
; OTHER INFORMATION: Glu at residues 17, 21 and 24 may be gamma-carboxy-Glu
US-09-462-931-2
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Best Local Similarity
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LENGTH: 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Siddiqi, Suhaib
APPLICANT: Little, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: K"ster, Hubert
2IP: 2000
COMPUTER REALABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch, 500 Kb
COMPUTER: IBM Compatible
COMPUTER: SYSTEM: MS-DOS
                                                                                                                                                                                APPLICANT: Hiroshi EGUCHI et al.
TITLE OF INVENTION: Recombinant Human Osteocalcin
NUMBER OF SEQUENCES: 14
CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                               CITY: Washington
                                                                                                                                                                    STREET:
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                                                                                                          D.C.
Y: U.S.A.
                                                                                                                                                                E: Wenderoth, Lind & Ponack
805 Fifteenth Street, N.W., #700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
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Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 25;
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1.1e-19;
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DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES I
US-07-717-811a-5
                                                                                                                                           Matches
                                                                                                                                                                                                        Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
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CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 98 amino acids
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NAME: Warren M. Cheek Jr.
REGISTRATION NUMBER: 33,3
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IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TENGTH: 98 amino a
TYPE: AMINO ACID
STRANDEDNESS: doub
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE TYPE:
CELL TYPE:
CELL LINE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL:
VOLUME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY:
LOCATION:
74
                                   25 LNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                    Local Similarity 100 es 25; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LIBRARY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: UPPLICATION NUMBER: UPPLIC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ISSUE:
   LNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
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                                                                                                                     51.0%; >--
100.0%; Pr
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                                                                                                                                ; Score 25; DB
%; Pred. No. 2e-
0; Mismatches
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98
                                                                                                                                                                    DB 3;
. 2e-19;
                                                                                                                                       0;
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                                                                                                                                       Indels
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RESULT 12 US-08-246-626-5

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Sequence 5, Application US/08246626
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 98 amino acids
TYPE: amino acid
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek Jr.
REGISTRATION NUMBER: 33,367
                                                                                                                                                                                                                          OTHER INFORMATION: PUBLICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  POSITION IN GENOME:
CHROMOSOME/SEGMENT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Hiroshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HYPOTHETICAL:
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                                                                                                                                                                                                                                                                                                                                                                                                                     EATURE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CELL TYPE:
                                                                                                                                            TITLE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MAP POSITION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE:
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                                                                  YOLUME:
                                                                                                                                                                                                                                                                                                    IDENTIFICATION METHOD:
                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
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DEVELOPMENTAL STAGE:
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PAGES
                                                                                                             JOURNAL:
                                                                                                                                                                                   AUTHORS:
                                                                                                                                                                                                                                                                                                                                           LOCATION:
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805 Fifteenth Street, N.W., #700
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JMBER: US 08/131,932
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                                                                                                                                                                                                                                                          RESULT 14
PCT-US01-12010-3
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Best Local Similarity 100
Matches 25; Conservative
                                                                                                                                                                                                                          Sequence 3, Applicat GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 25; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 186
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                              CURRENT APPLICATION NUMBER: PCT/US01/12010 CURRENT FILING DATE: 2001-04-11
                                                              APPLICANT: Stephens, J. Claiborne TITLE OF INVENTION: Haplotypes of FILE REFERENCE: MWH-0512PCT BGLAP
                                                                                                                                                                                      APPLICANT: Genaissance Pharmaceuticals, Inc. APPLICANT: Bentivegna, Steven C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR FILING DATE: 2000-09-22 PRIOR APPLICATION NUMBER: 09/PRIOR FILING DATE: 2000-10-24
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CURRENT FILING DATE: 2001-04-16
                                                                                                                    APPLICANT:
                                                                                                                                      APPLICANT:
                                                                                                                                                                        APPLICANT:
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PRIOR FILING DATE: 2000-04-18
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                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 10
TYPE: PRT
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                RIOR APPLICATION NUMBER: 60/195,840
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PUBLICATION DATE:
RELEVANT RESIDUES
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                                                                                                                  Rounds, Eileen
                                                                                                                                    Koshy, Beena
                                                                                                                                                    Choi, Julie Y.
                                                                                                                                                                    Chew, Anne
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2000-04-11
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                                                                                                                                                                                                                                                                                                                                                                                                                  51.0%; Score 25; 100.0%; Pred. No.
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Pred. No.
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60/216,880

60/225,270

60/216,647

60/226,868 60/225,757 60/225,447 60/217,496 60/220,963

60/225, 267

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RESULT 16
US-10-217-651-336
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; TYPE: PRT
; ORGANISM: Homo sapien
PCT-US01-12010-3
          PRIOR FILING DATE: 2001-01-16
PRIOR APPLICATION NUMBER: 60/179,065
PRIOR APPLICATION NUMBER: 60/180,628
PRIOR APPLICATION NUMBER: 60/180,628
PRIOR FILING DATE: 2000-02-04
PRIOR PPLICATION NUMBER: 60/214,886
PRIOR APPLICATION NUMBER: 60/217,487
PRIOR APPLICATION NUMBER: 60/217,487
PRIOR APPLICATION NUMBER: 60/225,758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 23, Application US/10143899
GENERAL INFORMATION:
APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PTZ47CIN
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Matches
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Matches
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                                                                                                                                                                                                                                                        Sequence 336,
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NUMBER OF SEQ ID NOS: 30
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 23
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 127

TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME/KEY: misc_feature
LOCATION: (18)
OTHER INFORMATION: Xaa e
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                                                                                                                                                                                              APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PJZ11C1N
                                                                                                                                                                  CURRENT FILING DATE: 2002-08-14
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OR APPLICATION NUMBER: 60/249,215
OR FILING DATE: 2000-11-17
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,264
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OR APPLICATION NUMBER: 60/249,214
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APPLICATION NUMBER: 60/249,244
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APPLICATION NUMBER: 60/249,207
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APPLICATION NUMBER: 60/240,960
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APPLICATION NUMBER: 60/239,935
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APPLICATION NUMBER: 60/249,211
FILING DATE: 2000-11-17
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FILING DATE: 2000-11-17
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FILING DATE: 2000-10-20
APPLICATION NUMBER: 60/246,474
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APPLICATION NUMBER: 60/249,217
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FILING DATE: 2000-06-30
APPLICATION NUMBER: 60/225,266
FILING DATE: 2000-08-14
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APPLICATION NUMBER: 60/235,836
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US-60-160-203-3372
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TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCO
TITLE OF INVENTION: USES THEREOF
FILE REFERENCE: CL000116
CURRENT APPLICATION NUMBER: US/60/160,203
CURRENT FILING DATE: 1999-10-19
NUMBER OF SEQ ID NOS: 6374
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 3372
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FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/231, 244
FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/232,081
FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/232,080
FILING DATE: 2000-09-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/231,243 FILING DATE: 2000-09-08 APPLICATION NUMBER: 60/233,065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: FILING DATE: 2000-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/241,786 FILING DATE: 2000-10-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2000-10 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 2000-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/232,400 FILING DATE: 2000-09-14
                                                                                                                                                                                                                                                                                                                                                                                             LNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 100 25; Conservative
                                                                                                                                                                                                                                                                                                               Application US/60160203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER: 60/241,221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER: 60/241,808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER: 60/232,401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER:
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100.0%;
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0; Mismatches
                                                     0;
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  42
                         47
                                                                   Score 23;
Pred. No.
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                                                      Mismatches
                                                                   DB 27;
1.5e-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 26;
2.6e-19;
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                                                                                 27;
                                                                               Length 42;
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                                                                                                                                                                                                                                                           HUMAN SECRETED PROTEINS AND
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APPLICANT: BONAZZI, VIVIEN
TITLE OF INVENTION: ISOLATED HUMAN SECRETED
TITLE OF INVENTION: UNCLEIC ACID MOLECULES E
TITLE OF INVENTION: USES THEREOF
FILE REFERENCE: CL000164
CURRENT APPLICATION NUMBER: US/60/169,840
CURRENT FILING DATE: 1999-12-09
NUMBER OF SEQ ID NOS: 9628
SOFTWARE: PASTSEQ for Windows Version 4.0
SEQ ID NO 5089
LENGTH: 42
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; LENGTH: 42
; TYPE: PRT
; ORGANISM: Human
US-60-163-123-1219
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US-60-163-123-1219
                                                                                                                                                                                                                                                                PCT-US01-08655-478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Human
US-60-169-840-5089
           PRIOR APPLICATION NUMBER: 09/522,929
PRIOR FILING DATE: 2000-04-18
PRIOR PPLICATION NUMBER: 09/770,160
PRIOR FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: 09/668,317
PRIOR APPLICATION NUMBER: 09/695,783
PRIOR APPLICATION NUMBER: 09/695,783
                                                                                                                                                                     Sequence 478, Application PC/TUS0108655
GENERAL INFORMATION:
APPLICANT: Hyseq, Inc
APPLICANT: Hyseq, Inc
TITLE OF INVENTION: NOVEL MACROPHAGE NUCLEIC ACIDS AND POLYPEPTIDES
FILE REFERENCE: 21272-065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/60/163,123
CURRENT FILING DATE: 1999-11-02
NUMBER OF SEQ ID NOS: 1986
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1219, Application:
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                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
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TITLE OF INVENTION: ISOLATED HUMAN SECRETED PROTEINS,
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN SECRETED PROTEINS AND
TITLE OF INVENTION: USES THEREOF
FILE REFERENCE: CL000137
                                                                                                                                    CURRENT APPLICATION NUMBER: PCT/US01/08655
CURRENT FILING DATE: 2001-04-16
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FILING DATE:
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23; Conserv
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23; Conserv
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NUCLEIC ACID MOLECULES ENCODING HUMAN SECRETED PROTEINS AND
                                                                                                                                                                                                                                                                                                                                                                                                      46.9%; scc
100.0%; Pr
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100.0%; Pr
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Pred. No.
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Pred. No
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; FEATURE: misc_feature; NAME/KEY: misc_feature; LOCATION: (1)...(140); OTHER INFORMATION: Xaa = any amino acid or nothing PCT-US01-08655-478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-07-717-811A-10
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2001-02-13
PRIOR APPLICATION NUMBER: 09/
PRIOR FILING DATE: 2001-03-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 09/728,628
PRIOR FILING DATE: 2000-12-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE:
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                                                                                                                                                        INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 14
TYPE: PRT
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                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                              FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek Jr
                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: DisplayWrite CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette,
FRAGMENT TYPE:
ORIGINAL SOURCE:
                                            MOLECULE TYPE:
HYPOTHETICAL:
                               ANTI-SENSE:
                                                                                                                                        SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 33
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: U: FILING DATE: 19910619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 805 Fifte
CITY: Washington
                                                                         TOPOLOGY:
                                                                                                                                                                                      TELEFAX: 202-371-8856
                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM:
                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
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                                                                                                                         LENGTH:
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es 19; Conservat
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                                                                                                                      21 amino acids
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805 Fifteenth
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                                                                             linear
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                                                                                                                                                                                                                                                                                                                                                                             US/07/717,811A
                                                                                                                                                                                                                                                  33,367
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Street, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.25 inch, 500 Kb
                                                                                                                                                        10:
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INDIVIDUAL ISOLATE: DEVELOPMENTAL STAGE:

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; PUBLICATION DATE:
; RELEVANT RESIDUES IN SEQ ID NO:
US-07-717-811A-10
                                                                                                                                                                                                                                                                                                                                                                                                          US-08-246-626-10
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          SOFTWARE: DISPLAYWRITE
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/246,626
FILING DATE: 20-MAY-1994
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
FILING DATE: 05-OCT-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette,
                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS
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CELL LINE:
ORGANELLE:
                                                                                                                                                                                                                                                          STREET: 805 Fifte
CITY: Washington
STATE: D.C.
                                                                                                                                                                     COMPUTER: IBM Compatible OPERATING SYSTEM: MS-DOS
                                                                                                                                                                                                                                 COUNTRY: U.S.A. ZIP: 20005
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE:
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                                                                                                                                                                                                                                                                                                         ADDRESSEE:
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Warren M. Cheek Jr
                                                                                                                                                                                                                                                                                                                                                                                            Application US/08246626
                                                                                                                                                                                                                                                                                         E: Wenderoth, 805 Fifteenth
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          32.7%;
                                                                                                                                                                                                                                                                                                                                                 Recombinant Human Osteocalcin
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Street, N.W., #700
                                                                                                                                                                                                     5.25 inch, 500 Kb
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Pred. No.
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RESULT 23
US-07-717-811A-12
Sequence 12, Application US/07717811A
GENERAL INFORMATION:
APPLICANT: Hiroshi EGUCHI et al.
TITLE OF INVENTION: Recombinant Huma
NUMBER OF SEQUENCES: 14
CORRESPONDENCE ADDRESS:
CORRESPONDENCE Washdaroth, Lind & Pona
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                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 16; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POSITION IN GENOME: CHROMOSOME/SEGMENT: MAP POSITION:
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ORIGINAL SOURCE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
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IMMEDIATE SOURCE:
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                                                                                                                                                                                                                                                                                                                                  FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES
                                                                                                                                                                                                                                                                                                                                                                                                                        VOLUME:
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DOCUMENT NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IDENTIFICATION METHOD: OTHER INFORMATION:
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TELEFAX: 202-371-8856
                           ADDRESSEE: Wenderoth, Lind & Ponack STREET: 805 Fifteenth Street, N.W.,
                                                                                                                                                                                                                                                                                                                                                                                                         PAGES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LIBRARY:
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                                                                                                                                                                                                                            1 YLYQWLGAPVPYPDPL 16
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                                                                                                                                                                                                     YLYQWLGAPVPYPDPL 16
Washington : D.C.
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                                                                                    Recombinant Human
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                                                                                                                                                                                                                                                                          Score 16;
Pred. No.
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                                                                                     Osteocalcin
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                                                                                   US-07-717-811A-12
                            Matches
                                                     Query Match
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NAME: Warren M. Cheek Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NFORMATION FOR SEQ ID NO:
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CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
                                                                                                                                                                                                                                                   LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
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ORIGINAL SOURCE:
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LENGTH: 15 amino acids
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CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM Con
OPERATING SYSTEM:
 36 IGFQEAYRRFYGPV 49
                                                                                            DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
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                          Local Similarity 100. es 14; Conservative
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DEVELOPMENTAL STAGE:
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TOPOLOGY: li
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                                                                                                                                                                                                                                       AUTHORS:
                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                             FOURNAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SENSE:
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                                       28.6%;
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                            0;
                                        Score 14;
Pred. No.
                            Mismatches
                                        DB 3; I
5.7e-08;
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                           Indels
                           0;
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RESULT 24
US-08-246-626-12
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GENERAL INFORMATION:
APPLICANT: Hixoshi EGUCHI et al.
TITLE OF INVENTION: Recombinant Human Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: US 07/717,811
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
FILING DATE: 05-OCT-1993
ATTORNEY/AGENT INFORMATION:
NAME: Walten M. Cheek Jr.
REGISTRATION NUMBER: 33,367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEX:
                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE:
HYPOTHETICAL:
ANTI-SENSE:
                                                                             UNITS:
FEATURE:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
                                                                                                                             POSITION IN GENOME: CHROMOSOME/SEGMENT:
                                                                                                                                                                                                                                                                                                                                     FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
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MEDIUM TYPE: Diskett
                                                                                                                                                                                            IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 15 amino acids
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                                                                                                                                                                                                                         CELL TYPE:
                                               NAME/KEY:
                                                                                                                                                              CLONE:
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OPERATING SYSTEM: MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
TOPOLOGY: 111
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                                                                                                            MAP POSITION:
                                                                                                                                                                                                                                                          TISSUE TYPE:
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805 Fifteenth Street, N.W., #700
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20-MAY-1994
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LENGTH: 13
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Best Local Similarity
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APPLICANT:
APPLICANT:
                                                                                                APPLICANT: Milner, Petter
APPLICANT: Holmes, Darren
APPLICANT: Holmes, Darren
TITLE OF INVENTION: PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
TITLE OF INVENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
TITLE OF INVENTION: COMPONENTS
FILE REFERENCE: 2110
CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
PRIOR APPLICATION NUMBER: 60/134,406
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/153,406
PRIOR FILING DATE: 1999-09-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US, CURRENT FILING DATE: 1999-07-C PRIOR APPLICATION NUMBER: DK (PRIOR FILING DATE: 1998-03-09 NUMBER OF SEQ ID NOS: 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: LATSEN, BJAINE DUE
TITLE OF INVENTION: PHARMACOLOGICALLY ACTIVE PEPTIDE CONJUGATES
TITLE OF INVENTION: REDUCED TENDENCY TOWARDS ENZYMATIC HYDROLYSI
FILE REFERENCE: PPT-20479-US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: osteocalcin (37-49)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Homo sapiens
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DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS:
TITLE:
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Similarity 100.0%; F
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Ezrin, Alan
                                                                                                                                                                                                                                                     Conjuchem, Inc
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BER: DK 0317/98
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100.0%; Pr
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RESULT 27
US-08-973-667-6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity 100.
""" Conservative
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                                                                                                                                                                                                                                                  APPLICATION NUMBER: JP 8-88608
FILING DATE: 10-APR-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 9-43331
FILING DATE: 27-FEB-1997
ATTORNEY_AGENT INFORMATION:
NAME: Crawford, Arthur R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/
PRIOR FILING DATE: 1999-10-18
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                                                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Artificial Sequence
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                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOCTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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             MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/973,667
FILING DATE: 10-DEC-1997
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 22201-4741
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Sakakibara, Shunpei
APPLICANT: Kimura, Terutoshi
APPLICANT: Morimoto, Shigeto
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TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6
                                                                                                                            SEQUENCE CHARACTERISTICS
                                                                                                                                                                                               TELECOMMUNICATION INFORMATION:
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                                                                     STRANDEDNESS:
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ORGANISM:
                                                    TOPOLOGY:
                                                                                                                                                                            TELEPHONE:
                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER: 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Arlington
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                                                                                                         LENGTH:
                                                                                    amino acid
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                                                                                                       13 amino acids
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                                                                                                                                                               703-816-4100
                                                    linear
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                               protein
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6.5e-07;
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RESULT 29
PCT-USO2-30312-2134
; Sequence 2134, Application PC/TUS0230312
; GENERAL INFORMATION:
; APPLICANT: NOVO NORDISK A/S et al.
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; OTHER INFORMATION: /product-
US-08-973-667-6
                                                                                                                                                                                                                                                        US-09-036-085-22
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                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 11; Conserv
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                                                                                                                                                                                                                                                                                                                                                       TELEFAX: (617)742-421: INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                       NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: UM
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PROV
FILING DATE: March 6, 19
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTTWARE: PATENTIN PC-LEASE #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Gary S. Stein et al.
TITLE OF INVENTION: Gene Therapy Using Bone Marrow Transplants Transfected With T
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
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NAME/KEY:
                                                                                                                                                                                                                                                                                                                      LENGTH: 43 amino acids
                                                                                                                                                                                                                                                                                         TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Boston
STATE: Massa
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                                                                                                                    22 CDELADHIGFQ 32
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
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100.0%; Pr
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; Pred. No.
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0.00033;
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0.00011;
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PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
PRIOR FILING DATE: 2001-09-24
PRIOR FILING DATE: 2001-09-24
PRIOR OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2134
PRIOR THE TAIL OF THE TAIL
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Best Local Similarity
watches 11; Conserva
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; OTHER INFORMATION:
PCT-US02-30312-2134
                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 31
US-09-962-756-2134
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PCT-US02-30412-2134
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APPLICANT: NOVO NORDISK A/S et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2134, Application US/09962756 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
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SEQ ID NO 2134
                                                                                                                                                               APPLICANT:
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CURRENT APPLICATION NUMBER: PCT/US02/30412
CURRENT FILING DATE: 2002-09-24
                                    APPLICANT: OSTERGAARD, SOREN
APPLICANT: HANSEN, PER HERTZ
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4051US1
                                                                                                                                                                                                                                                                                                                       APPLICANT: PILLUTLA, RENUKA APPLICANT: BRISSETTE, RENE
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PRIOR FILING DATE: 2001-09-24
NUMBER OF SEO ID NOS: 2227
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TYPE: PRT
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CURRENT APPLICATION NUMBER: US/09/962,756
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TYPE: PRT
ORGANISM: Artificial Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 LGAPVPYPDPL 71
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                                                                                                                                                                                                                                                                                  BRISSETTE, RENEE
BLUME, ARTHUR J.
                                                                                                                                                           BRANDT, JAKOB
GOLDSTEIN, NEIL I.
SPETZLER, JANE
                                                                                                                                                                                                                                                           SCHAFFER, LAUGE
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Conservative
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Pred. No.
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Pred. No.
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CURRENT FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1998-09-02
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: PATENTIN Ver. 2.1
SEQ ID NO 2134
                                                                                                                                                                                                              RESULT 33
US-10-253-493-2134
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OTHER INFORMATION: Description of Artificial Sequence: Synthetic THEN INFORMATION: peptide US-09-962-756-2134
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US-10-253-471-2134
                                                                                                                                                                        Sequence 2134, Application US/10253493 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                        Matches
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SEQ ID NO 2134
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                                                                                                                APPLICANT: PILLUTLA, RENUKA et al. TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS FILE REFERENCE: 1878-4056
                                    PRIOR APPLICATION NUMBER: 09/962,756 PRIOR FILING DATE: 2001-09-24
                                                                        CURRENT APPLICATION NUMBER: US/10/253,493
CURRENT FILING DATE: 2002-09-24
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PRIOR FILING DATE: 1998-09-02
NUMBER OF SEQ ID NOS: 2227
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PRIOR FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR FILING DATE: 2000-03-29
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TYPE: PRT
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ORGANISM: Artificial Sequence
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61 LGAPVPYPDPL 71
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                  APPLICATION NUMBER: 09/538,038
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PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2182
LENGTH: 76
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Best Local Similarity
Matches 11; Conserv
                                                                                                               SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 2182
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Best Local Similarity
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LENGTH: 74
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                                                                                                                                                   PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
                                                                                                                                                                        CURRENT APPLICATION NUMBER: PCT/US02/30412
CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
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TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057PC
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PRIOR FILING DATE: 1998-09-02
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
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                                       ORGANISM: Artificial Sequence FEATURE:
                                                                              TYPE: PRT
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OTHER INFORMATION: Description of Artificial Sequence: Synthetic OTHER INFORMATION: peptide
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                                                                                                LENGTH: 76
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; OTHER INFORMATION: peptide
US-09-962-756-2182
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SEQ ID NO 2182
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APPLICANT: HANSEN, PER HERTZ
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4051US1
CURRENT APPLICATION NUMBER: US/09/962,756
CURRENT FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR PILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1998-09-02
NUMBER OF SEC TO NOCE 2003-29
PRIOR FILING DATE: 1998-09-02
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CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR PELICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1098-09-02
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SOFTWARE: PatentIn Ver.
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TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057
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APPLICANT: PILLUTLA
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ORGANISM: Artificial Sequence
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ORGANISM: Artificial Sequence
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o. 0.00056;
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                                                                                                                                                                                                                                                                                                                                                                                          PCT-US00-19843-14
OTHER INFORMATION: Description of Artificial Sequence:commercially
OTHER INFORMATION: available petide antigen
PCT-US00-19843-14
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NUMBER OF SEQ ID NOS: 2227

SOPTWARE: Patentin Ver. 2.1

SEQ ID NO 2182

LENCON:
                                                                                                                        SOFTWARE:
SEQ ID NO 14
                                                                                                                                                                                                                                                                                                                                                         Sequence 14, Applica GENERAL INFORMATION:
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Best Local Similarity
Matches 11; Conserv
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Matches 11; Conserv
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APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1998-09-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: 09/962,756 PRIOR FILING DATE: 2001-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/10/253,493
CURRENT FILING DATE: 2002-09-24
                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/
PRIOR FILING DATE: 1999-07-23
                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: PCT/US00/19843 CURRENT FILING DATE: 2000-07-21
                                                                                                                                                                                                                                                   FILE REFERENCE:
                                                                                                                                                                                                                                                                TITLE OF INVENTION: Recombinant Antibody Directed Against Human Sperm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: PILLUTLA, RENUKA et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4056
                                                                                                                                                            NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
ORGANISM: Artificial Sequence
                                                    TYPE: PRT ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
OTHER INFORMATION: Description of Artificial Sequence: Synthetic
OTHER INFORMATION: peptide
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                                                                                                         LENGTH:
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                                                                                                                                                                                                                                                                                                   Deikman, Alan B
                                                                                                                                                                                                                                                                                                                                        Herr, John C.
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                                                                                                                                                                                                                                                                                                                    Norton, Elizabeth J.
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PCT-US02-30412-2205
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; OTHER INFORMATION: peptide
PCT-US02-30312-2205
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GENERAL INFORMATION:
APPLICANT: NOVO NORDISK A/S et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057PC
                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2205
LENGTH: 13
                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2205, Application PC/TUS0230412 GENERAL INFORMATION:
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LENGTH: 13
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TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4056PC
CURRENT APPLICATION NUMBER: PCT/US02/30412
CURRENT FILING DATE: 2002-09-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: PCT/US02/30312
CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
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NUMBER OF SEQ ID NOS: 2227
SOFTWARE: PatentIn Ver. 2.1
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ORGANISM: Artificial Sequence
                                                                                                                                                                        ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                         OTHER INFORMATION:
OTHER INFORMATION:
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                                                                                                                                       Description of Artificial Sequence: Synthetic peptide
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RESULT 42

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RESULT 43
US-08-844-462-13
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Best Local Similarity
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                               TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING TITLE OF INVENTION: POLYMERS USING MASS SPECTROMETRY. NUMBER OF SEQUENCES: 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: Mazza, Richard J.
REGISTRATION NUMBER: 27,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Amgen Inc.
TITLE OF INVENTION: A
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                  APPLICANT: PATTERSON, DALE H. APPLICANT: TARR, GEORGE E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE: 805.447.4112
                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
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CITY: Thousand Oaks
STATE: California
CLASSIFICATION:
                                                                                                                                                 COUNTRY: U:
ZIP: 02110
                                                                                                                                                                                STATE: MA
                                                                                                                                                                                                               STREET:
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TOPOLOGY: li
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                                APPLICATION NUMBER:
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                                                                                                                                                                                                               High Street Tower,
                                                                                                                                                                 USA
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                                US/08/844,462
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:

08/796,598

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Sequence 9, Application US/09536556
GENERAL INFORMATION:
APPLICANT: Wang, Linfa
TITLE OF INVENTION: EPITOPE TAGGING SYSTEM
FILE REFERENCE: Griffith Hack
CURRENT APPLICATION NUMBER: US/09/536,556
CURRENT FILING DATE: 2000-03-28
PRIOR APPLICATION NUMBER: 09/011,563
PRIOR FILING DATE: 1998-06-15
NUMBER OF SEQ ID NOS: 41
                                                                                                                                                                                                     RESULT 45
US-09-536-556-9
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US-09-011-563-9
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; MOLECULE TYPE: peptide
US-08-844-462-13
                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-011-563-9
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TITLE OF INVENTION: EPITOPE TAGGING SYSTEM
FILE REFERENCE: Griffith Hack
CURRENT APPLICATION NUMBER: US/09/011,563
CURRENT FILING DATE: 1998-06-15
NUMBER OF SEQ ID NOS: 41
SOFTMARE: Patentin Ver. 2.0
SEQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 9, Application US/09011563 GENERAL INFORMATION:
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Best Local Similarity
Matches 10; Conserv
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TELEFAX: (617) 248-7100
TELEFAX: (617) 248-7100
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
SOFTWARE: PatentIn Ver. 2.0 EQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 13
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION:
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1 GAPVPYPDPL 10
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APPLICATION NUMBER: US 08/446,055
FITTING DATE: 19-MAY-1995
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TYPE: amino acid
STRANDEDNESS: Single
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                                                                                                                                                                                                                                                                             1 GAPVPYPDPL 10
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; OTHER INFORMATION: Description of Artificial Sequence: peptide ; OTHER INFORMATION: sequence US-09-536-556-9
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Search completed: December 4,
Job time: 141 secs
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Best Local Similarity
                                                                                                    Matches
                                                                                                                                                                                             LENGTH: 13
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                 7 GAPVPYPDPL 16
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1 GAPVPYPDPL 10
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Conservative (
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0.0014;
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OM protein - protein search, using sw model

Run on: December 4, 2002, 15:48:26; Search time 15 Seconds (without alignments) 96.115 Million cell updates/sec

US-09-462-931-2-COPY

Title: Perfect score: Sequence: 1 YLYQWLGAPVPYPDPLXPRR.....DELADHIGFQEAYRRFYGPV 49

Scoring table: OLIGO Gapop 60.0 , Gapext 60.0

Searched: 262574 seqs, 29422922 residues

Word size : 0

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Listing first 45 summaries

Database : Issued_Patents_AA:*

1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*

2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*

5: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

1 3 3 4 4 4 4 4 7 7 10 11 11 11 11 11 11 11 11 11 11 11 11	Result
446 666666777777101111122222330	Score
93.9 93.9 93.9 51.0 51.0 51.0 20.4 20.4 14.3 14.3 14.3 12.2 12.2 20.4 14.3 14.3 12.2 20.4 12.2 20.4 14.3 12.2 20.4 14.3 12.2 20.4 14.3 17.2 20.4 17.2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Query Match
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Patent No. 516448 Patent No. 516448 Patent No. 5434245 Patent No. 5434	Description

RESULT 3 5164483-2

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Sequence 42, App		Sequence 42, App	Sequence 133, Ap	Sequence 133, App	Sequence 133, Ap	Sequence 12, App	Sequence 125, Ap	Sequence 125, Ap	Sequence 4, Appl:	Sequence 18, App.	Sequence 5, Appli	Sequence 138, Ap	Sequence 138, App	Sequence 138, Ap	Sequence 5, Appl	Sequence 5, Appl	rddw 'c apmanhae

ALIGNMENTS

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NUMBER OF SEQUENCES: 10
CURRENT APPLICATION DATA:
APPLICATION NUMBER: U5/07/993,980
FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 855,473; 444,786
FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
FILING DATE: 01-DEC-1989
;SEQ ID NO:1:
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5434245-1
; Patent No. 5434245
; APPLICANT: KOYAMA, NOBUTO; KIMIZUKA, FUSAO; KATO, IKUNOSHIN
; TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR PREPARING
; TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR PREPARING
                                                                                                                                                                                                                                                                                           RESULT 5
5434245-2
; Patent No. 5434245
; APPLICANT: KOYAMA, NOBUTO; KIMIZUKA, FUSAO; KATO, IKUNOSHIN
; APPLICANT: NOVAMA, POLYPEPTIDES AND METHOD FOR PREPARING
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; Patent No. 5164483
; APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose
; TITLE OF INVENTION: Y-CARBOXYCLUTANATE DERIVATIVE METHOD
; FOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USING THE SAME
                                                                                                                    SEQ ID NO:2:
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Best Local Similarity
Matches 32; Conserva
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LENGTH: 49
     Query Match 51.0%; Score 25; DB Best Local Similarity 100.0%; Pred. No. 4. Matches 25; Conservative 0; Mismatches
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Best Local Similarity 100.
Matches 25; Conservative
                                                                                                                                   CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/993,980

FILING DATE: 16-DEC-1992

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 855,473; 444,786

FILING DATE: 23-MAR-1992; 01-DEC-1989

APPLICATION UNMBER: 444,786

FILING DATE: 01-DEC-1989
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/575,639
FILING DATE: 31-AUG-1990
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NUMBER OF SEQUENCES: 10
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RESULT 7
5434245-4
                                                 RESULT 8
5168041-1
;Patent No. 5168041
; APPLICANT: BERGMANN, ANDREAS E.
; TITLE OF INVENTION: METHOD FOR THE DETERMINATION OF
;OSTEOCALCIN IN HUMAN SERUM OR PLASMA
; NUMBER OF SEQUENCES: 2
; CURRENT APPLICATION DATA:
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Best Local Similarity
Watches 25; Conserve
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5434245-3
; Patent No. 5434245
; APPLICANT: KOYAMA,
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; APPLICANT: KOYAMA, I
; TITLE OF INVENTION:
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SEQ ID NO:4:
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            SEQ ID NO:1:
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Best Local Similarity
Matches 25; Conserv
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07
FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
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FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 855,473; 444,786
FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
FILING DATE: 01-DEC-1989
                        APPLICATION NUMBER: US/
FILING DATE: 03-OCT-1989
                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 855,473; 444,786 FILING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786
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100.0%;
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D METHOD FOR
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TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
TELEPAX: (617) 248-7100
INFORMATION FOR SEQ ID NO: 13:
SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acids
TYPE: amino acids
STRANDEDNESS: single
                                                                                                         Sequence 13, Application US/08447175A Patent No. 5869240
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
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GENERAL INFORMATION:
APPLICANT: PATTERSON, DALE H.
TITLE OF INVENTION: METHODS A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: 1: MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/446,055
FILING DATE: 19-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: PATTERSON, DALE H. APPLICANT: TARR, GEORGE E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING TITLE OF INVENTION: POLYMERS USING MASS SPECTROMETRY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/796,598 FILING DATE: 07-FEB-1997 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: FLYNN ESQ., Kerry A. REGISTRATION NUMBER: 33,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Boston
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100.0%; Pr
   METHODS AND APPARATUS FOR SEQUENCING
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100.0%; Pred. No
tive 0; Mismato
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Best Local Similarity J
Watches 10; Conservat
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US-08-943-915-6
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Patent No. 5998170
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                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/943,915
                                                                                                                                                                                                                                                                  APPLICANT: Itoh, No. 5998170uyuki
APPLICANT: Martin, Frank
APPLICANT: Danilenko, Dimitry
TITLE OF INVENTION: A FIBROBLAST GROWTH FACTOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: RAUSCHENBACH, KUTC
REGISTRATION NUMBER: 40,137
REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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MEDIUM TYPE: Floppy
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 13 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                COUNTRY: USA
ZIP: 91320-1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/O FILING DATE: 19-MAY-1995 CLASSIFICATION: 422
CLASSIFICATION: 435
                                                                                                                                                                                                                      STREET: 1840 DeHavilland Drive CITY: Thousand Oaks
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: US
ZIP: 02110
                     FILING DATE:
                                                                                                                                                                                                                                                           ADDRESSEE: Amgen Inc.
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ATTORNEY/AGENT INFORMATION: NAME: Mazza, Richard J.

REGISTRATION NUMBER:

27,657

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; MOLECULE TYPE: protein US-08-881-037-112
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Patent No. 6
                                         Query Match
Best Local 9
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Best Local Similarity
                            Matches
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                                                                                                                                                                       INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                             NAME: KONSKI, ANTOINETE F.
REGISTRATION NUMBER: 34,202
REFERENCE, DOCKET NUMBER: 20
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650) 813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: A-TELECOMMUNICATION INFORMATION: 805.447.4112
                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/443,540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Glick, Gary D.

APPLICANT: Swanson, Patrick C.

TITLE OF INVENTION: DNA BINDING ANTIBODIES
                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION: NAME: Konski, Antoinette
                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                      FILING DATE: 1 CLASSIFICATION:
                                        Local
                                                                                                                TOPOLOGY:
                                                                                                                                                                                                  TELEFAX: (650) 494-0792
                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/0 FILING DATE: 23-JUN-1997
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STRANDEDNESS: si
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Morrison & Foerster STREET: 755 Page Mill Road
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7 GAPVPYPDPL 16
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                          1 Similarity 100.
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100.0%; Pr
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                         Score 10; DB
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hes 0;
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                                                  Length 13;
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RESULT 13
US-08-652-816A-43
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                                                                  US-08-652-816A-43
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 Matches
                                Query Match
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PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: GB 9125579.8
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ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & Borun
ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & Borun
ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & Borun
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                                                                                 MOLECULE TYPE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
Local Similarity hes 10; Conserv
                                                                                                TOPOLOGY:
                                                                                                                                                                                                         TORNEL CAUGH
NAME: David W. Clough
REGISTRATION NUMBER: 36,107
REGISTRATION NUMBER: 28111/33308
                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 08/244,597 FILING DATE: 01-JUN-1994
                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/GB92/02240 FILING DATE: 02-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: GB 9 FILING DATE: 02-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/01 FILING DATE: 23-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25 (EPO)
                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
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                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
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                  Score 10;
Pred. No.
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 Mismatches
                                 DB 2;
                  0.00043;
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7 GAPVPYPDPL 16

RESULT 14 US-08-466-120-2

Sequence 2, Application US/08466120 Patent No. 5869284

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23 GAPVPYPDPL 32

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PCT-US94-07266-2
                                                                                                                                                                                                              Sequence 2, Application PC/TUS9407266 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                              Matches
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OPERATING SYSTEM: MS-DOS
SOFTWARE: WORD PERFECT 5.1
CURRENT APPLICATION DATA:
                                           STREET: 0 CITY: ROSELAND CITY: NEW JERSEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELECOMMUNICATION INFORMATION:
TELEPHONE: 201-994-1700
TELEFAX: 201-994-1744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07266
FILING DATE: 24 JUN 94
ATTORNEY/AGENT INFORMATION:
COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
                                                                                                                                             NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, ADDRESSEE: CECCHI, STEWART & OLSTEIN STREET: 6 BECKER FARM ROAD CITY: ROSELAND STATE: NEW JERSEY
                                                                                                                                                                                                                                                                                                                                                                           Local Similarity es 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY: LI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: FERRARO, GREGORY D.
REGISTRATION NUMBER: 36,134
REFERENCE/DOCKET NUMBER: 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/466,120 FILING DATE: June 6, 1995
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                                                                                                               ADDRESSEE:
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                                                                                              6 BECKER FARM ROAD
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                                                                                                               CARELLA, BYRNE, BAIN, GILFILLAN CECCHI, STEWART & OLSTEIN
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Best Local Similarity
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US-08-333-358-8
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 8, Apprased No. 5571696
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: EVANS Ph.D., RONALD M.
APPLICANT: MANCELSDORF Ph.D., DAVID J.
APPLICANT: ONG MS., ESTELITA S.
APPLICANT: ORO Ph.D., ANTHONY E.
APPLICANT: BORGMEYER Ph.D., UWE K.
APPLICANT: GIGUERE Ph.D., VINCENT MMN
APPLICANT: YAO MI., TSO-PANG NMN
TITLE OF INVENTION: NOVEL RECEPTORS
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: 201-994-170
TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
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TOPOLOGY: LIN
MOLECULE TYPE:
                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/333,358
ATTORNEY/AGENT INFORMATION:
NAME: Relier Ph.D., Stephen E.
REGISTRATION NUMBER: 31192
REFERENCE/DOCKET NUMBER: 931 89
TELECOMMUNICATION INFORMATION:
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                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Pretty
STREET: 444 So. F
CITY: Los Angeles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: FERRARO, GREGORY D. REGISTRATION NUMBER: 36,134 REFERENCE/DOCKET NUMBER: 32
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OPERATING SYSTEM: MS-DOS
SOFTWARE: WORD PERFECT 5.1
                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                          COUNTRY: US
ZIP: 90071-2921
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                                                                                                                                                                        FILING DATE:
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Pred. No.
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                                                                                                                 ; MOLECULE TYPE: protein US-08-463-694-8
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APPLICANT: EVANS Ph.D., RONALD M.
APPLICANT: ONG MS., ESTELITA S.
APPLICANT: ONG MS., ESTELITA S.
APPLICANT: ORO Ph.D., ANTHONY E.
APPLICANT: BORGMEYER Ph.D., UME K.
APPLICANT: BORGMEYER Ph.D., UNE K.
APPLICANT: YAO MT., TSO-PANG NMN
TITLE OF INVENTION: NOVEL RECEPTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 17
US-08-463-694-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; MOLECULE TYPE: protein US-08-333-358-8
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                                                   Matches
                                                                  Query Match
Best Local Similarity
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TELEFAX: (619) 535-8949
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                  FILING DATE: 05-JUN-1995

CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/761,068
FILING DATE: 17-SEP-1991
ATTORNEY/AGENT INFORMATION:
NAME: Reiter Ph.D., Stephen E.
REGISTRATION NUMBER: 31192
REFERENCE/DOCKET NUMBER: P31 8936
                                                                                                                                                                                                                  TELEFAX: (619) 535-8949
INFORMATION FOR SEQ ID NO: 8:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
ADDRESSEE: Pretty, Schroeder, Brueggemann & Clark
STREET: 444 So. Flower St., Suite 2000
                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: 444 SO. F. CITY: Los Angeles STATE: CA
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TOPOLOGY: linear
                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                 TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/463,694
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5 WLGAPVP 11
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5. 5696233
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                                                                                                                                                                 amino acid
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(619) 531
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100.08; Fi
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100.0%;
                                               ; Score 7; DB 1
b; Pred. No. 5.5
0; Mismatches
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Pred. No.
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o. 5.5;
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                                                                                  Length 440;
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; Sequence 1, Application US/08373935; Patent No. 574/661; GENERAL TNECENT.
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                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Watches 7; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-694-501-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
NAME: Reiter Ph.D., Stephen E.
REGISTRATION NUMBER: 31192
REFERENCE/DOCKET NUMBER: P31 893(
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619) 535-9001
TELEFAX: (619) 535-8949
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
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ZIF: 90071-2921

COMPUTER READABLE FRORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, \

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/694,501

FILING DATE: 07-AUG-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: EVANS Ph.D., RONALD M.
APPLICANT: MANGELSDORF Ph.D., DAVID J.
APPLICANT: ONG MS., ESTELITA S.
APPLICANT: ORO Ph.D., ANTHONY E.
APPLICANT: BORGMEYER Ph.D., UWE K.
APPLICANT: GIGUERE Ph.D., VINCENT MNN
APPLICANT: GIGUERE Ph.D., VINCENT MNN
APPLICANT: YAO Mr., TSO-PANG NMN
TITLE OF INVENTION: NOVEL RECEPTORS
NUMBER OF SEQUENCES: 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: Evans, Ronald M. APPLICANT: Mangelsdorf, David J. APPLICANT: Willy, Patricia J. TITLE OF INVENTION: IDENTIFICATI TITLE OF INVENTION: RETINOID-RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/333,358
FILING DATE:
APPLICATION NUMBER: US/07/761,068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
ADDRESSEE: Pretty, Schroeder, Brueggemann & Clark
STREET: 444 So. Flower St., Suite 2000
                                                                                                                                                                                                                                                                        5 WLGAPVP 11
||||||
4 WLGAPVP 10
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CITY: Los Angeles
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 440 amino acids
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                                                                                                                                                                                                                                                                                                                                                              14.3%; Score 7; DB ilarity 100.0%; Pred. No. 5. Conservative 0; Mismatches
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    IDENTIFICATION OF A DISTINCT RETINOID-RESPONSIVE PATHWAY AND USES THEREFOR
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SEQUENCE CHARACTERISTICS:

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INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 447 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-373-935-1
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Best Local Similarity
Matches 7; Conserv
                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: Windows
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/968,747
FILING DATE: 03-SEP-1997
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Fraser, Janis K.
REGISTRATION NUMBER: 34,819
REFERENCE/DOCKET NUMBER: 08472/705001
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 7, Application US/08968747 Patent No. 6060595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:

APPLICANT: Scaglioni et al.

TITLE OF INVENTION: INHIBITION OF VIRAL REPLICATION NUMBER OF SEQUENCES: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/08/373
FILING DATE:
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Relter, Stephen E.
REGISTRATION UNMBER: 31,192
REFERENCE/DOCKET NUMBER: P41
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                COUNTRY: USA
ZIP: 02110-2804
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Floppy disk
COMPOTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
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CITY: Los Angeles
                                                                                                                                                                                                                                                                                                                                                                                                STREET: 225
CITY: Boston
                                     TELEFAX:
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                                     617/542-8906
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Pred. No.
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Best Local Similarity
October 6; Conserve
RESULT 22
US-08-791-522-4
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US-08-493-071-28
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No. 6127149
GEMERAL INFORMATION:
APPLICANT: Hirai, Yohei
APPLICANT: Koshida, Shogo
APPLICANT: Oka, Yumiko
TITLE OF INVENTION: MODIFIED EPIMORPHIN
NUMBER OF SEQUENCES: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 12.:
Best Local Similarity 100
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 28, Application US/08493071 Patent No. 6127149
                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Price, Robert L.
REGISTRATION NUMBER: 22,685
REFERENCE/DOCKET NUMBER: 715-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-684-1111
                                                                                                                                                                                                                            TELEFAX: 703-684-1124
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 12 aming acids
                                                                                                                                                                         STRANDEDNESS: si
TOPOLOGY: linear
MOLECULE TYPE: pep
                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/493,071
                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                         TELEPHONE: 703-684-1124
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TOPOLOGY: lir
                                                                                                                                                                                                                TYPE: amino acid
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                                                                             7 GAPVPY 12
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                                                                                                         Conservative
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                                                                                                    12.2%; >--
100.0%; Pr
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100.0%; Pr
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Pred. No.
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                                                                                                        red. No. 2. Mismatches
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Sequence 4, Application US/08791522 Patent No. 5935817

GENERAL INFORMATION:

Bandman, Olga

Surya

NOVEL HUMAN CYSTATIN-LIKE PROTEIN

TITLE OF INVENTION: NOTITLE OF INVENTION: PONUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS

STREET:

3174 Porter Drive

Incyte Pharmaceuticals, Inc.

ADDRESSEE:

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                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: 415-855-0555
TELEFAX: 415-845-4166
INFORMATION FOR SEQ ID NO: 4:
                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:

NAME: Billings, Lucy J.

REGISTRATION NUMBER: 36,749

REFERENCE/DOCKET NUMBER: PF-0

TELECOMMUNICATION INFORMATION:

TELEPHONE: 415-855-0555
                                                                                                                                                                                                   APPLICANT: Bandman, Olga
APPLICANT: Goli, Surya K.
TITLE OF INVENTION: NOVEL HUMAN CYSTATIN-LIKE
                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                         NUMBER OF SEQUENCES: 4
                                                                                                                                                                                          TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 139 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08/79
FILING DATE: Filed Herewith
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LIBRARY: GC....
                                                                                                                 CITY: Palo Alto
                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                      31 LGAPVP 36
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les 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM CON
OPERATING SYSTEM:
SOFTWARE: FastSEC
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
                                                                                     COUNTRY:
                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Palo Alto
                            COMPUTER: IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                 6 LGAPVP, 11
                                                                          94304
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Patent No. 5591826
                                                                             NAME: Kagan, Sarah A.
REGISTRATION NUMBER: 32,141
REFERENCE/DOCKET NUMBER: 0110
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202.508.9100
TELEPAX: 202.508.9299
TELEFAX: 1074.37 ENAME ITT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: 415-845-4166 INFORMATION FOR SEQ ID NO:
INFORMATION FOR SEQ ID NO:
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APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 00 FILING DATE: 02-DEC-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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APPLICATION NUMBER: US/09/314,777
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APPLICANT: de la Chappelle, Albert
TITLE OF INVENTION: Mutator Gene and Hereditary
TITLE OF INVENTION: No. 5591826-Polyposis Colorectal Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMMEDIATE SOURCE:
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PRIOR APPLICATION NUMBER:
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b. 23;
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SEQUENCE CHARACTERISTICS:

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; ORIGINAL SOURCE:
; ORGANISM: Homo sapiens
US-08-457-176-2
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 Query Match
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APPLICANT:
APPLICANT:
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MEDIUM TYPE: Floppy disk
                                                        ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: 202.508.9100
TELEFAX: 202.508.9299
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HYPOTHETICAL: YES
ANTI-SENSE: NO
                                                                                   MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                                                                          SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: de la Chappelle, Albert
TITLE OF INVENTION: Mutator Gene and Hereditary
TITLE OF INVENTION: No. 5693470-Polyposis Colorectal Cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
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                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 32
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/160295 FILING DATE: 02-DEC-1993
                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/457,175
FILING DATE: 01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                              TYPE: amino acid
STRANDEDNESS: sir
                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
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                                            ORGANISM:
                                                                                                                   TOPOLOGY:
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                                                                                                                                                      934 amino acids
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                                            Homo
                                                                                      YES
                                                                                                                              single
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US-08-709-784-1
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                                                                                                                                       Sequence 3, Application US/09651656 Patent No. 6340566
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                                                                                                       GENERAL INFORMATION:
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Best Local :
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Matches 6; Conserv
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APPLICANT: The JC
APPLICANT: MCCUTHEN-MALONEY, SANDRA APPLICANT: LAWRENCE LIVERMORE NATIONAL LABORATORY TITLE OF INVENTION: DETECTION AND QUANTITATION OF SINGLE NUCLEOTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 202-508-9299
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 934 amino acid
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-508-9100
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
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APPLICATION NUMBER:
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ANTI-SENSE: NO
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CORRESPONDENCE ADDRESS:
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TOPOLOGY: 11
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-650-855-3
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US-09-650-855-3
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Best Local Similarity 100.
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SEQ ID NO 3
LENGTH: 934
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SEQ ID NO 3
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                                                                                                                                                                                            Sequence 5, Application US/07642734C Patent No. 5824513
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Patent No. 636535
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TITLE OF INVENTION: CHIMERIC PROTEINS FOR DETECTION AND QUANTITATION OF DNA
TITLE OF INVENTION: MUTATIONS, DNA SEQUENCE VARIATIONS, DNA DAMAGE AND DNA
TITLE OF INVENTION: MISMATCHES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/651,656
CURRENT FILING DATE: 2000-08-29
PRIOR APPLICATION NUMBER: 60/192,764
PRIOR FILING DATE: 2000-03-28
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PRIOR FILING DATE: 2000-03-28
NUMBER OF SEQ ID NOS: 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/650,855
CURRENT FILING DATE: 2000-08-29
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                                                            NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                      APPLICANT: LOUISIER, J B
APPLICANT: Mcalpine, J B
TITLE OF INVENTION: Recombinant D
TITLE OF INVENTION: Erythromycin
TITLE OF INVENTION: 27
                                                                                                                             APPLICANT: Katz, L
APPLICANT: Donadio, S
APPLICANT: Mcalpine, :
                                                                                                                                                                                                                                                                                             614 GAPVPY 619
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               STREET: 1
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Abbott Park
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                               3: Edward H. Gorman Abbott Laboratories D377/AP6D-2 One Abbott
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                                                                                                               Recombinant DNA Method
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Mismatches
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Best Local S
Matches 6
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Patent No. 6004787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                               APPLICATION NUMBER: US/08/439
FILING DATE: 11-MAY-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Casuto, Dianne
REGISTRATION NUMBER: 40,943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO:
                                   TELEPHONE: 847-938-313
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTY...
ZIP: 60064-3500
ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
CONTEM: PC-DOS/MS-DOS
CONTEM: CONTEM: PC-DOS/MS-DOS
CONTEM: CONTEM: PC-DOS/MS-DOS
CONTEM: CONTEM: PC-DOS/MS-DOS
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
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NAME: Danckers, Andreas
                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Katz, L
APPLICANT: Mcalpine,
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                SEQUENCE CHARACTERISTICS:
                                                TELECOMMUNICATION INFORMATION: TELEPHONE: 847-938-3137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32 LADHIG 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US FILING DATE: 17-JAN-91 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                  STREET: Abbott Laboratories D377/AP6D-2 One Abbott STREET: Park Rd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity es 6; Conserv
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                                                                                                                                                                                                                                                                                                                 ZIP:
                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                    REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
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LENGTH:
                                                                                                                                                                                                                                                                                                                 60064-3500
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100.0%; Pr
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Query Match
Best Local Similarity
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                                                                                      RESULT 32
US-09-062-451-138
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                                                                                                                                                                                                                                                                        ;; TOPOLOGY: linear; SEQUENCE DESCRIPTION: SEQ ID US-08-991-789A-138
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US-08-991-789A-138
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                             Sequence 138, Application US/09062451 Patent No. 6344550
GENERAL INFORMATION:
APPLICANT: Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
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SEQUENCE CHARACTERISTICS:
 APPLICANT:
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/991,789A
FILING DATE: 11-Dec-1997
CLASSIFICATION: <Unknown>
AFTONNEY/ACENT INFORMATION:
NAME: POTTER: NUMBER: 33,332
REGISTRATION NUMBER: 33,332
REGISTRATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION 1006 622-6900
TELECAX: (206) 682-6031
                                                                                                                                                                                  39 QEAYR 43
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les 6; Conserv
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                                                                                                                                                    3 QEAYR 7
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                   TYPE: amino acids
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Seed IP Law Group
STREET: 701 Fifth Avenue, Su
Frudakis, Tony N. Smith, John M. Reed, Steven G.
                                                                                                                                                                                                                Conservative
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100.0%; Pr
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100.0%; Pr
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                                                                                                                                                                                                            Score 5; DB 4; Pred. No. 2e+0; Mismatches
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Pred. No.
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                                                                                                                                                                                                                                                                                        NO: 138:
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o. 2e+05;
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o. 3.7e+02;
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RESULT 33
US-09-598-326-138
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GENERAL INFORMATION:
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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NAME: MAKI, DAVID J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 21
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: DBM PC COMPATION
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/09/062,451
APPLICATION NUMBER: US/09/062,451
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TOPOLOGY: li
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STATE: Washington
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nes 5; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 04-APR-1997
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ZIP: 98104-7092
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                                                                                                      COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: PATENTIAL Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/598,326
FILING DATE: 20-Jun-2000
CLASSIFICATION: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: POTTER, Jane E.R.
REGISTRATION NUMBER: 33,332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANCE. Smith, John M.
Smith, John M.
Reed, Steven G.
Reed, Steven G.
Reed, Steven G.
Reed, Steven G.
Reed, Smith, John M.
Reed, Sm
                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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ADDRESSEE: Seed Intellectual Property Law Group PLLC
STREET: 701 Fifth Avenue, Suite 6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Seattle
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6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09598326
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Pred. No.
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QΥ
                                                                                                                                PCT-US93-05647-18
; Sequence 18, Application PC/TUS9305647
; GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Description of Artificial Sequence: antibody
US-09-142-974B-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 34
US-09-142-974B-5
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 100. Matches 5; Conservative
                                                                                                                                                                                                                                                                                                              Matches
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: Single Chain FV Constructs TITLE OF INVENTION: Antibodies FILE REFERENCE: MSK.P-013-USMP CURRENT APPLICATION NUMBER: US/09/142,974B CURRENT FILING DATE: 1998-09-18 PRIOR APPLICATION NUMBER: PCT/US97/04427 PRIOR FILING DATE: 1997-03-20 PRIOR APPLICATION NUMBER: 60/013,703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR FILING DATE: 1: NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence
                              NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook,
                                                                            APPLICANT: President and Fellows of Harvard College and Eunice Kennedy Shriver C TITLE OF INVENTION: HETEROGENEOUS PROTEOLIPID PEPTIDE TITLE OF INVENTION: 139-151-SPECIFIC T CELL CLONES AND USES THEREFOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39 QEAYR 43
                STREET:
                                                                                                                                                                                                                                                                                                                            Local Similarity
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TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE DESCRIPTION: SEQ ID NO: 138:
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Lexington
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Guo, Hong-Fen
Rivlin, Ken
Sadelain, Michel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 9 amino acids
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Larson, Steven M.
                 2 Militia Drive
                                                                                                                                                                                                                                                                                                              Conservative
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100.0%; Pr
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B; Pred. No. 34;
O; Mismatches
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Pred. No.
                                Smith & Reynolds,
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TELEPAX: (617) B61-9540
INFORMATION FOR SEQ ID NO: 18
SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
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Best Local S
Matches 5
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                                                                                                                                                                                           ZIP: 22313-1404
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0,
CURRENT APPLICATION DATA:
                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 4-206854
FILING DATE: 03-AUG-1992
ATTORNEY_AGENT INFORMATION:
NAME: Teskin, Robin L
REGISTRATION NUMBER: 35,030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
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FILING DATE: JUNE 10, 19
ATTORNEY/AGENT INFORMATION:
NAME: Granahan, Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: HU
TELECOMMUNICATION INFORMATION:
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: AZUMA, Chihiro APPLICANT: KIMURA, Tadashi TITLE OF INVENTION: ANTI-OTITLE OF INVENTION: METHOD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: SAJI, Fumitaka
                                                                                                                                                                                                                                                                                     STATE: Virginia
COUNTRY: United States
ZIP: 22313-1404
ZIP: 22313-1404
                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 03-AUG
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OPERATING SYSTEM: PC-DOS/MS-DOS
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STRANDEDNESS: si
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REGISTRATION NUMBER: 32,227
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                  REFERENCE/DOCKET NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                           E: Burns, Doane, Swecker & Mathis P.O. Box 1404
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                                                                                                                                                                                                                PatentIn Release #1.0, Version #1.30
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                                                                                                                                                         NUMBER: US/08/101,041A
03-AUG-1993
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100.0%; Pred. No
tive 0; Mismat
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 Query Match
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INFORMATION FOR SEQ ID NO:
                                                                                                         INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
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10 ACTERISTICS:
11 Amino acids
2TRANDEDNESS: 51
TOPOLOGY:
11
TOPOLOGY:
11
TOPOLOGY:
11
                                                                                                                                                                     REFERENCE/DOCKET NUMBER: 110
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: FOWLKES, Dana M.
APPLICANT: RIDER, James E.
TITLE OF INVENTION: SH3 BINDING PEPTIDES AND METHODS OF
TITLE OF INVENTION: ISOLATING AND USING SAME
NUMBER OF SEQUENCES: 467
                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
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MEDIUM TYPE: Floppy disk
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                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
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                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                           STATE: New York COUNTRY: U.S.A. ZIP: 10036-2711
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OTHER INFORMATION:
OTHER INFORMATION:
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                                                            TOPOLOGY:
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mes 5; Conserv
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                                                                          amino acid
                                                                                                                                      66141 PENNIE
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                                                                                            20 amino acids
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KAY, Brian K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.2%;
ilarity 100.0%;
Conservative
                                                                                                                                                        (212) 869-9741/8864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DER, Channing J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QUILLIAM, Lawrence A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pennie & Edmonds
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N: 435
 10.2%;
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oxytocin receptor polypeptide."
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 Score 5;
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o. 45;
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Length 20;
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US-09-500-124-125
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                               US-08-403-378B-12
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                                                                                                                                                          Best Loc
Matches
Patent No.
                                                                                                                                                                                                                                                                             TELEX: 66141 PENNIE
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 20 amino
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity Matches 5; Conserv
                                                                                                                                                                                          Query Match
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APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 11
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE: 16-FEB-
                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Misrock, S. Leslie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 10036-2711
COMPUTER READABLE FORM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: FOWLKES, Dana M.
APPLICANT: RIDER, James E.
TITLE OF INVENTION: SH3 BINDING PEPTIDES AND METHODS
TITLE OF INVENTION: ISOLATING AND USING SAME
                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                          Local Similarity hes 5; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: New York
STATE: New York
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
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                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE:
                                                                                                                            7 GAPVP 11
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                                                                                             7 GAPVP 11
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12, Application US/08403378B
5. 5759991
                                                                                                                                                                                                                                                                        amino acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THORN, Judith M.
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                                                                                                                                                             Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SPARKS, Andrew B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pennie & Edmonds
                                                                                                                                                                                                                                   peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16-FEB-1996
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%; Pred. No. 49;
                                                                                                                                                          10.2%; Score 5; DB . 100.0%; Pred. No. 49 tive 0; Mismatches
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                                                                                                                                                                                          DB 4;
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INFORMATION FOR SEQ ID NO:
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APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 27-APR-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 1-280590
FILING DATE: 27-OCT-1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: SUGHRUE, MION, ZINN, MACPEAK & SEAS
STREET: 2100 PENNSYLVANIA AVENUE, NW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)293-7060
TELEFAX: (202)293-7860
                                                                                                                                                                                                                                                                                                                                     FILING DATE: 27-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: BIGGART, WADDELL A
REGISTRATION NUMBER: 24,8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 27-APR-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 530 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: OJIKA, KOSEI
TITLE OF INVENTION: NEUROTROPHIC PEPTIDE DERIVATIVES
NUMBER OF SEQUENCES: 25
                                    FEATURE:
                                                                                                                       MOLECULE TYPE:
FRAGMENT TYPE:
                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
LENGTH: 22 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
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MEDIUM TYPE: Floppy disk
                                                                                                        ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
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NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: FILING DATE: 12-SEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: JP 2-243003 FILING DATE: 12-SEP-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: JP 1-
FILING DATE: 21-DEC-1989
                                                 STRAIN: Wistar TISSUE TYPE: h
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TELEX: 6491103
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: JP 3-124688 FILING DATE: 27-APR-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                      ORGANISM:
                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                          TYPE: amino acid
                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
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                                                                                                                                                                                           LENGTH:
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20037-3202
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IRIE, TSUNEMASA
ONO, KEIICHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGUI, HIDEO
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOJO, SHIN-ICHIRO KOJIMA, SHIN-ICHI
Peptide
1..22
                                                                                    rattus norvegicus
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                                                                                                                                                            linear
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                                                                                                                                       peptide
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                                                 hippocampal tissue
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SEQUENCE DESCRIPTION: US-08-991-789A-133
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US-09-062-451-133
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Best Local Similarity
Watches 5; Conserve
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Sequence 133, Application US/08991789A
Patent No. 6252054
GENERAL INFORMATION:
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                                                                                            Sequence 133, Application US/09062451 Patent No. 6344550
                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (206) 682-60 INFORMATION FOR SEQ ID NO: 133:
                                  APPLICANT:
APPLICANT:
TITLE OF INVENTION:
                                                                                                                                                                                            10 QEAYR 14
                                                                                                                                                                                                                            39 QEAYR 43
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MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATION DATA:

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/991,789A
FILING DATE: 11-Dec-1997
CLASSIFICATION: <UNKnown>
ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Frudakis, Tony N. Smith, John M. Reed, Steven G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER NUMBER OF SEQUENCES: 292
                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                          5.
                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: POTTER, Jane E. R. REGISTRATION NUMBER: 33,332 REFERENCE/DOCKET NUMBER: 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 23 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE:
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                                                                                                                                                                                                                                                           Conservative
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                               Smith, John M. Reed, Steven G.
                                                              Frudakis,
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701 Fifth Avenue, Suite 6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (206)
 COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER
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100.0%; Pred. No.
tive 0; Mismatc
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100.0%; Pred. No. 55
ive 0; Mismatches
                                                              Tony N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   682-6031
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                                                                                                                                                                                                                                                                                                                                       SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  622-4900
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                                                                                                                                                                                                                                                                                                                                         NO: 133:
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                                                                                                                                                                                                                                                                          DB 4;
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5. 53;
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RESULT 42
US-09-598-326-133
; Sequence 133, App
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Best Local Similarity
Thes 5; Conserve
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No. 6423496 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
ZIP: 98104-7092
ZIP: 98104-7092
COMPOTER READABLE FORM:
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: Floppy disk
MEDIUM TYPE: POS/MS-DOS
MEDIUM TYPE: POS/MS-DOS
MEDIUM TYPE: POS/MS-DOS
MEDIUM TYPE: POS/MS-DOS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 23 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 21
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: Mak1, David J.
REGISTRATION NUMBER: 31,392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION UMBER: US/09/062,451 FILING DATE: 04-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: book CITY: Seattle
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             10 QEAYR 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: single
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                   COMPUTER RADABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/598,326
FILING DATE: 20-Jun-2000
CLASSIFICATION: <UNknown>
                                                    ATTORNEY/AGENT INFORMATION: NAME: Potter, Jane E.R.
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TREATMENT AND DIAGNOSIS OF BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Frudakis,
                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
           NAME: Potter, Jane E.R.
REGISTRATION NUMBER: 33,332
REFERENCE/DOCKET NUMBER: 210121.419D1
                                                                                                                                                                                                                                                                             STATE: Washington
                                                                                                                                                                                                                                                                                                                      CITY: Seattle
                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Seed Intellectual Property Law Group PLLC STREET: 701 Fifth Avenue, Suite 6300
                                                                                                                                                                                                                                                             ZIP: 98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09598326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3: SEED and BERRY LLP
6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  Reed, Steven G.
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100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                TREATMENT AND : 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tony N.
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Mismatches
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RESULT 43
US-08-324-977-42
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 42,
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TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 133:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/08/324,977
FILING DATE: 18-CCT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: YOSHIDA, IWAO
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
NAME: Stevens-Smith, Theres
REGISTRATION NUMBER: 36,281
REFERENCE/DOCKET NUMBER: 90
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/099,706
FILING DATE: 30-JUL-1993
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COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
                                                  APPLICATION NUMBER: US 07/635,451
FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, Theresa M.
                                                                                                                                                                                                                                                            FILING DATE: 31-AUG-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
                                                                                                                    PRIOR APPLICATION DATA:
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CITY: Washington
                                                                                                                                      APPLICATION NUMBER: US 07/769,996 FILING DATE: 02-OCT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC
OPERATING SYSTEM:
SOFTWARE: ASCII
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             39 QEAYR 43
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nes 5; Conserv
                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20006
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STRANDEDNESS: single
TOPOLOGY: linear
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MORI, Chisato
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                                                                                                                                                                                                                                             09-NOV-1990
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100.0%; Pred. N
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         36, 281
900703D
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US-08-384-616-42
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 30 amino
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               INFORMATION FOR SEQ ID NO:
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APPLICANT:
APPLICANT:
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SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
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                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-305605
FILING DATE: 09-NCV-1990
                                                                                                                                                                                                                                       APPLICATION NUMBER: JP 2-167466
FILING DATE: 25-JUN-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-230921
FILING DATE: 31-AUG-1990
                                                                                                                                                                                                                                                                                                                                              FILING DATE:
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
SEQUENCE CHARACTERISTICS:
                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, The
                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS GENOMIC CUNA AND ANTIGEN POLYPEPTIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER OF SEQUENCES:
                                                                                       NAME: Stevens-Smith, Theresa M. REGISTRATION NUMBER: 36,281
REFERENCE/DOCKET NUMBER: 900703
                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: UFILING DATE: 02-OCT-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29 CDELA 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
                                           TELEFAX:
                                                         TELEPHONE:
                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
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                               440142
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1725 K St. N.W. Suite 1000
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TAKAMIZAWA, Akahisa
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                                                         (202) 659-2930
                                                                                                                                                       28-DEC-1990
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                                                                                                                                                                   US 07/635,451
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Pred. No.
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; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-384-616-42
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Best Local Similarity lov.
""+" bes 5; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/08/
FILING DATE: 01-AUG-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/
FILING DATE: 18-OCT-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 2-1
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: ASCII
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in, 1.44Mb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: YOSHIDA, IWAO
TITLE OF INVENTION: NON-A, NON-B HEPATITIS VIRUS
TITLE OF INVENTION: CDNA AND ANTIGEN POLYPEPTIDE
NUMBER OF SEQUENCES: 50
CORRESPONDENCE ADDRESS:
                                                                                   FILING DATE: 28-DEC-1990
ATTORNEY/AGENT INFORMATION:
NAME: McLeland, Le-Nhung
REGISTRATION NUMBER: 31,
                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/769,996
FILING DATE: 02-OCT-1991
                                               REFERENCE/DOCKET NUMBER: 90 TELECOMMUNICATION INFORMATION:
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APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: JP 2 FILING DATE: 09-NOV-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16 CDELA 20
                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                       APPLICATION NUMBER: US 08/099,706 FILING DATE: 30-JUL-1993
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                                                                                                                                                      APPLICATION NUMBER:
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1725 K St. N.W. Suite 1000
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MORI, Chisato
TAKAMIZAWA, Akahisa
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                               (202) 659-2930
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Total number of hits satisfying chosen parameters:
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Perfect score:
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/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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Result No.	Score	Query Match	Length	BG	ID	Description
ם	10	20.4	13	10	US-09-822-485-29	Sequence 29, Appl
2	10	20.4	13	10	US-09-801-968-21	21,
ω	10	20.4	136	10	US-09-858-349-2	2, 7
4	6	12.2	70	9	US-09-895-913A-364	64
տ	6	12.2	70	10	US-09-815-242-11343	
0	0	12.2	103	10	US-09-841-132-501	Sequence 501, App
7	6	12.2	116	10	US-09-775-932-16	16, 7
80	6	12.2	139	10	US-09-969-834-4	Sequence 4, Appli
9	6	12.2	934	10	US-09-788-657-19	Sequence 19, Appl
10	u	10.2	9	9	US-09-924-400-138	Sequence 138, App
11	ъ	10.2	9	10	US-09-810-936-138	Sequence 138, App
12	U	10.2	9	10	US-09-429-755-138	Sequence 138, App
13	5	10.2	23	9	US-09-924-400-133	Sequence 133, App
14	5	10.2	23	10	US-09-810-936-133	ŭ
15	5	10.2	23	10	US-09-429-755-133	Sequence 133, App
16	v	10.2	26	10	US-09-821-984-38	Sequence 38, Appl
17	σ	10.2	28	10	US-09-799-983-17	Sequence 17, Appl
18	ر ت	10.2	38	10	US-09-864-761-38378	Sequence 38378, A
19	5	10.2	40	10	US-09-925-299-1355	Sequence 1355, Ap

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133	125	121	121	121	119	112	109	106	105	102	100	99	97	94	92	86	84	74	69	67	64	63	60	57	53
10	10	10	10	9	10	10	10	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	Ę
US-09-853-918-61	US-09-738-973-59	US-09-429-755-2	US-09-810-936-2	US-09-924-400-2	US-09-925-301-1584	US-09-921-397-29	US-09-864-761-36654	US-09-984-245-321	US-09-984-245-182	US-09-758-308-2	US-09-893-238-126	US-09-864-761-40512	US-09-873-880-14	US-09-764-877-1490	US-09-925-300-1795	US-09-864-761-33499	US-09-764-847-592	US-09-925-302-509	US-09-764-847-888	US-09-864-761-45197	US-09-764-860-451	US-09-867-550-1110	US-09-925-297-514	US-09-864-761-36551	05-09-8/3-880-12
-		Sequence 2, Appli	Sequence 2, Appli	Sequence 2, Appli	Sequence 1584, Ap	Sequence 29, Appl	Sequence 36654, A	Sequence 321, App	Sequence 182, App	Sequence 2, Appli	Sequence 126, App		Sequence 14, Appl	Sequence 1490, Ap	Sequence 1795, Ap	Sequence 33499, A	Sequence 592, App	Sequence 509, App	Seguence 888, App	Sequence 45197, A	Sequence 451, App	Ó	Sequence 514, App	Sequence 36551, A	Sequence 12, Appl

ALIGNMENTS

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RESULT 2
US-09-801-968-21
; Sequence 21, Application US/09801968
; Patent No. US20020082205A1
; GENERAL INFORMATION:
; APPLICANT: Itoh, No. US20020082205A1uyuki
; APPLICANT: Kavanaugh, W. Michael
; TITLE OF INVENTION: HUMAN FGF-23 GENE AND GE;
; TITLE OF INVENTION: PRODUCTS
; FILE REFERENCE: PP-17150.001/201130.40901
; CURRENT APPLICATION NUMBER: US/09/801,968
; CURRENT FILING DATE: 2001-03-07
; NUMBER OF SEQ ID NOS: 46
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; OTHER INFORMATION: Description of Artificial Sequence:protein
US-09-822-485-29
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US-09-822-485-29
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Patent No. US20020001825A1
GENERAL INFORMATION:
APPLICANT: Itoh, No. US20020001825A1uyuki
TITLE OF INVENTION: No. US20020001825A1el Fibroblast Growth Factor-Like Polypeptid
FILE REFERENCE: 08035.0001-01000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Ver. 2.0 SEQ ID NO 29
                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
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CURRENT FILING DATE: 2001-04-02
NUMBER OF SEQ.ID NOS: 35
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TYPE: PRT
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                                                                                                                                                                                                                                                                                                                                                                                                             20.4%; Score 10; DB 10; 100.0%; Pred. No. 6.6e-05; tive 0; Mismatches 0;
                                                                                                            GENE EXPRESSION
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Query Match
Best Local Similarity
Watches 10; Conserve
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US-09-858-349-2
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                                                                                                                                                                                                                                                                                                                                                                                                                US-09-895-913A-364
                               CURRENT APPLICATION NÚMBER: US/09/895,913A CURRENT FILING DATE: 2001-06-29 PRIOR APPLICATION NUMBER: US 08/881,227 PRIOR FILING DATE: 1997-06-24 NUMBER OF SEQ ID NOS: 368 SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 364 ENGTH: 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 16
SOFTWARE: Patentin version 3.1
SEQ ID NO 2
LENGTH: 136
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APPLICANT: PLAKSIN, Daniel
TITLE OF INVENTION: SWALL FUNCTIONAL UNITS OF ANTIBODY HEAVY CHAIN VARIABLE REGIONS
FILE REFERENCE: 87534-2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 20.4%;
Best Local Similarity 100.0%;
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                                                                                                                                                                                                                                                                                                                                                                             Sequence 364, Application US/09895913A Patent No. US20020160456A1
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                                                                                                                                                                                   APPLICANT: Miller, Charles
APPLICANT: Tomb, Jean Francois
APPLICANT: Oomen, Raymond P.
TITLE OF INVENTION: Identification of Polynucleotides
TITLE OF INVENTION: Encoding No. US20020160456Aiel Helicobacter Polypeptides in
TITLE OF INVENTION: Genome
FILE REFERENCE: 06132/043002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: FastSEQ
SEQ ID NO 21
LENGTH: 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/09/858,349
CURRENT FILING DATE: 2000-06-02
ORGANISM: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: mouse hybridoma specific for \mbox{H-2D} + \mbox{RGPGRAFVTI} peptide FEATURE:
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1 GAPVPYPDPL 10
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0.00051;
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CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR PILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-11-27
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                                                                                                                                                      Sequence 501, Application US/09841132 Patent No. US20020061848A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: FastSEQ for Windows Version SEQ ID NO 11343
LENGTH: 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 11343, Application US/09815242 Patent No. US20020061569A1
                            APPLICANT: Bhatia, Ajay
APPLICANT: Skeiky, Yasir A.W.
APPLICANT: Probst, Peter
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATMENT AND
TITLE OF INVENTION: DIAGNOSIS OF CHLAMYDIAL INFECTION
FILE REFERENCE: 210121.469CB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: ELITRA.011A
CURRENT FILING DATE:
                    CURRENT APPLICATION NUMBER: US/09/841,132
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40 EAYRRF 45
                                                                                                                                                                                                                                                                                                 14 EAYRRF
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Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carr, Grant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Trawick, John D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
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Pred. No.
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Pred. No.
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lo. 5.4;
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RESULT 8
US-09-969-834-4
; Sequence 4, Application US/09969834
; Patent No. US20020102711A1
; GENERAL INFORMATION:
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; ORGANISM: Chlamydia pneumoniae
US-09-841-132-501
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; ORGANISM: Gallus
US-09-775-932-16
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US-09-775-932-16
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APPLICANT: University of British Columbia
TITLE OF INVENTION: Production and use of modified Cystatins
FILE REFERENCE: 58069
CURRENT APPLICATION NUMBER: US/09/775,932
CURRENT FILING DATE: 2001-02-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 599

SOFTWARE: FASTSEQ for Windows Version 3.0/4.0

SEQ ID NO 501

LENGTH: 103
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Best Local Similarity
Matches 6; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT FILING DATE: 2001-02-02
PRIOR APPLICATION NUMBER: CA99/00717
PRIOR FILING DATE: 1999-08-05
PRIOR APPLICATION NUMBER: 60/095,503
PRIOR FILING DATE: 1998-08-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              8 LGAPVP 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6 LGAPVP 11
                             COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARRE: FastSEO for Windows Version 2.0
CURRENT APPLICATION DATA:
                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
ADDRESSEE: Incyte Pharmaceuticals, Inc.
STREET: 3174 Porter Drive
                                                                                                                                                                                                                                                                                     APPLICANT: Bandman, Olga
Goli, Surya K.
TITLE OF INVENTION: NOVEL HUMAN CYSTATIN-LIKE
                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
APPLICATION NUMBER: US/09/969,834 FILING DATE: 01-Oct-2001
                                                                                                                                     COUNTRY: USA
ZIP: 94304
                                                                                                                                                                   STATE: CA
                                                                                                                                                                                 STREET: 3174 Por
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PatentIn Ver. 2.0
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100.0%; Pr
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100.0%; Pr
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Pred. No. 8.5;
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Query Match
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                                                                                                                                          ; TYPE: PRT; ORGANISM: Homo sapiens US-09-788-657-19
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SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 19, Application US/09788657 Patent No. US20020123149A1 GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Nicolaides, Nicholas
APPLICANT: Sass, Philip
APPLICANT: Kinzler, Kenneth
APPLICANT: Grasso, Luigi
APPLICANT: Vogelstein, Bert
                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/788,657
CURRENT FILING DATE: 2001-02-21
PRIOR APPLICATION NUMBER: 60/184,336
PRIOR FILING DATE: 2000-02-23
                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Methods for generating hypermutable TITLE OF INVENTION: yeast FILE REFERENCE: 01107.00097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX: 415-845-4166 INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                             LENGTH: 934
614 GAPVPY 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31 LGAPVP 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6 LGAPVP 11
                               7 GAPVPY 12
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REGISTRATION NUMBER: 36,749
REFERENCE/DOCKET NUMBER: PF-0193 US
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMMEDIATE SOURCE:
LIBRARY: GenBank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 139 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 09/471,765 FILING DATE: <Unknown>
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                                                                       Conservative
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                                                                                    12.2%;
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                                                                                      Score 6;
Pred. No.
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                                                                       Mismatches
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lo. 9.9;
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RESULT 10 US-09-924-400-138

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Sequence 138, Application US/09924400

Patent No.

US20020165371A1

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              Query Match
Best Local Similarity
Tatches 5; Conservi
                                                                                          ; OTHER INFORMATION: Predicited HLA A2.1 Motifs (T-cell epitopes) US-09-810-936-138
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US-09-810-936-138
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Best Local S
Matches 5
                                                                                                                                                                                 TITLE OF INVENTION: CÓMPOSITIONS AND METHODS FOR THE TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST FILE REFERENCE: 201021.418C11
CURRENT APPLICATION NUMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
NUMBER OF SEQ ID NOS: 334
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 138
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Deng, Ta
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: AND DIAGNOSIS OF EREAST CANCER
FILE REFERENCE: 210121.419612
CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2001-08-07
NUMBER OF SEQ ID NOS: 340
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
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                                                                                                                        TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence
                                                                                                                                                                       ENGTH:
39 QEAYR 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39 QEAYR 43
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Skelky, Yasir A. W.
Harlocker, Susan L.
Day, Craig H.
Li, Samuel X.
                                                                                                                                                                                                                                                                                                                                                                        Misher, Linda E.
Dillon, Davin C.
Retter, Marc W.
                                                                                                                                                                                                                                                                                                              Skeiky, Yasir A.W.
Harlocker, Susan L.
Day, Craig H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misher, Lynda E.
Dillon, Davin C.
                                                                                                                                                                                                                                                                                                                                                             Wang, Aijun
                                                                                                                                                                                                                                                                                                                                                                                                                         Smith, John M.
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                              Conservative
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100.0%; Pr
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s; Pred. No. 8.6
0; Mismatches
                                0
                                             Score 5;
Pred. No.
                                Mismatches
                        DB 10; L. NO. 8.6e+04; 0;
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                                                                                                                                                                                                                                                                                OF BREAST CANCER
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                                                          Length 9;
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                                                                                                                                                                      NUMBER OF SEQ ID NOS: 340
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 133
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Best Local Similarity 100.0%; Pred. No.
Matches 5; Conservative 0; Mismatc
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SEQ ID NO 138
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Query Match
Best Local Similarity
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TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C12
CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2001-08-07
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CURRENT APPLICATION NUMBER: US/0
CURRENT FILING DATE: 1999-10-28
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TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER
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                                                                                                     LENGTH: 23
TYPE: PRT
ORGANISM: Artificial Sequence
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                                                                            FEATURE: OTHER INFORMATION: Predicited Th Motifs (B-cell epitopes)
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ORGANISM: Artificial Sequence
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Day, Craig H.
Li, Samuel X.
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 Score 5;
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                                   ; OTHER INFORMATION: Predicited Th Motifs (B-cell epitopes) US-09-429-755-133
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                                                                                                                             CURRENT APPLICATION NUMBER: US/09/429,755A
CURRENT FILING DATE: 1999-10-28
NUMBER OF SEQ ID NOS: 315
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 133
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SOFTWARE: FastSEQ for
SEQ ID NO 133
LENGTH: 23
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APPLICANT:
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APPLICANT: Misher, Lynda
APPLICANT: Retter, Marc W.
APPLICANT: Dillon, Davin C.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C6
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APPLICANT: Day, Craig H.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C11
CURRENT APPLICATION NUMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
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                                                                   ORGANISM: Artificial Sequence FEATURE:
                                                                                                LENGTH: 23
TYPE: PRT
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les 5; Conserv
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Misher, Linda E.
Dillon, Davin C.
Retter, Marc W.
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Reed, Steven G.
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US-09-799-983-17
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Best Local Similarity
Thes 5; Conservi
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US-09-821-984-38
                                                                                                                           ; ORGANISM: Homo sapiens
US-09-799-983-17
                                                                                                                                                                                       SOFTWARE:
SEQ ID NO 17
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SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 38

LENGTH: 26

TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
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TITLE OF INVENTION: MCTHOD OF INVESTIGATING
TITLE OF INVENTION: MCLEGULAR INTERACTIONS
FILE REFERENCE: 07083.000702
CURRENT APPLICATION NUMBER: US/09/821,984
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,826
PRIOR FILING DATE: 2000-03-31
                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/799,983
CURRENT FILLING DATE: 2001-03-06
PRIOR APPLICATION NUMBER: US 60/186,971
PRIOR FILING DATE: 2000-03-06
                                                                                                                                                                                                                                                                                               APPLICANT: Shami, Paul
APPLICANT: Parker, Charles
TITLE OF INVENTION: NOVEL GENE RNO UPREGULATED IN LEUKEMIA CELLS BY NITRIC OXIDE
FILE REFERENCE: 1321.2.51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Consler, Thomas G.
APPLICANT: Iannone, Marie A.
APPLICANT: Gray, John G.
APPLICANT: Stimmel, Julia E.
                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 24
SOFTWARE: PatentIn version 3.0
                                                                                                                                                         LENGTH: 28
TYPE: PRT
17 CDELA 21
                              29 CDELA 33
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US-09-864-761-38378
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Best Loc
Matches
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SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 38378
FENCE.
                                             Query Match
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PRIOR FILING DATE: 2000-08-03
PRIOR APPLICATION NUMBER: GB 24263.6
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TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
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PRIOR APPLICATION NUMBER: PCT/US01/00664
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 09/774,203
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                                                                                                                                                                                                                                                                                                                                    FEATURE:
                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 60/234,687 FILING DATE: 2000-09-21
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APPLICATION NUMBER: PCT/US01/00663
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N: EXPRESSED IN PLACENTA, SIGNAL = 8.2

N: EXPRESSED IN HEART, SIGNAL = 7.5

N: EXPRESSED IN BONE MARROW, SIGNAL = 7.9

N: EXPRESSED IN ADULT LIVER, SIGNAL = 8.7

N: EXPRESSED IN LUNG, SIGNAL = 9.7

N: EXPRESSED IN HELA, SIGNAL = 8.6

N: EXPRESSED IN FETAL LIVER, SIGNAL = 8.3

N: EXPRESSED IN BRAIN, SIGNAL = 7.5

N: EXPRESSED IN BRAIN, SIGNAL = 7.5
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NMBER: US 60/207,456
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                                             US-09-873-880-12
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GENERAL INFORMATION:
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                                                                                                      SOFTWARE: Microsoft Office SEQ ID NO 12
                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                               Sequence 12, Application US/09873880 Patent No. US20020123118A1
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Best Local :
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Best Local Similarity
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NAME/KEY: SITE

LOCATION: (25)

OTHER INFORMATION: X

NAME/KEY: SITE

LOCATION: (34)

OTHER INFORMATION: X

NAME/KEY: SITE

LOCATION: (36)
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CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins
FILE REFERENCE: PA102
                                                                                                                                                                                                           APPLICANT: Falco, S. Carl
APPLICANT: Allen, Stephen M.
TITLE OF INVENTION: GLYCINE METABOLISM ENZYMES
FILE REFERENCE: BB1192 US CIP
CURRENT APPLICATION NUMBER: US/09/873,880
CURRENT FILING DATE: 2001-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
NUMBER OF SEQ ID NOS: 1556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Ver. 2.0
                                                                                                                                                                             PRIOR APPLICATION NUMBER: 09/363,321 PRIOR FILING DATE: July 28, 1999
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                                                                                                                                   NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                   APPLICANT: Sewalt, Vincent
                                                                                                                                                   PRIOR FILING DATE: July 31, 1998
                                                                                                                                                                  PRIOR APPLICATION NUMBER: 60/094,839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM:
                                                            ORGANISM: Zea mays
                                                                            TYPE: PRT
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FEATURE:
FEA
                                                                                                                                                                                                                                                                                                                           SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 36551
LENGTH: 57
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PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
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PRIOR APPLICATION NUMBER: US 60/236,359
PRIOR FILING DATE: 2000-09-27
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TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
FILE REFERENCE: Aeomica-X-1
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US 09/774,203
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APPLICATION NUMBER: PCT/US01/00661
FILING DATE: 2001-01-30
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APPLICATION NUMBER: US 09/608,408
FILING DATE: 2000-06-30
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APPLICATION NUMBER: PCT/US01/00663
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Hanzel, David K.
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US-09-867-550-1110
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Matches 5
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PRIOR FILING DATE: 1999-03-12
NUMBER OF SEQ ID NOS: 928
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 514
                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                          Sequence 1110, Application US/09867550 Patent No. US20020082206A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION
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                                           APPLICANT: Topper, James
TITLE OF INVENTION: No. US20020082206Alel Polynucleotides
TITLE OF INVENTION: Thereby
FILE REFERENCE: 21402-013 (Cura-313)
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CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05989
PRIOR FILING DATE: 2000-03-08
                                                                                                                         APPLICANT:
                                                                                                                                                                                            APPLICANT: Leach, APPLICANT: Mehral
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                            CURRENT APPLICATION NUMBER: US/09/867,550
                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Rosen et al.
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ORGANISM: Homo sapiens
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Conley, Pamela
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EXPRESSED IN FETAL LIVER, SIGNAL = 0.65
EST_HUMAN HIT: BE968985.1, EVALUE 7.20e-01
SWISSPROT HIT: Q13009, EVALUE 1.00e-31
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CURRENT FILING DATE:

2001-09-20

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US-09-764-860-451
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US-09-864-761-45197
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PRIOR FILING DATE: 2000-05-30
NUMBER OF SEQ ID NOS: 2125
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 451, Application US/09764860 Patent No. US20020094953A1 GENERAL INFORMATION:
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC A
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
FILE REFERENCE: Acomica-x-1
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR APPLICATION NUMBER: US 60/207,456
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APPLICANT: Penn, Sh
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SEQ ID NO 451
LENGTH: 64
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TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
FILE REFERENCE: PC008
CURRENT APPLICATION NUMBER: US/09/764,860
CURRENT FILING DATE: 2001-01-17
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OTHER INFORMATION: Xaa equals any of the naturally occurring
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Local Similarity 100.0%;
les 5; Conservative (
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Rank, David R.
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100.0%;
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Pred. No.
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                                                                                                                                                                                                Sequence 888, Application US/09764847 Patent No. US20020132767Al GENERAL INFORMATION:
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Best Local Similarity
Matches 5; Conser
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SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 888
LENGTH: 69
                                     Prior application data removed - NUMBER OF SEQ ID NOS: 2003
SOFTWARE: Patentin Value

                                                                                             APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC009
CURRENT APPLICATION NUMBER: US/09/764,847
CURRENT FILING DATE: 2001-01-17
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TYPE: PRT
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                                                                                                                                                                                                                                                                                                                                            31 GAPVP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: PCT/US01/00661
ETLING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00670
FILING DATE: 2001-01-30
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FILING DATE: 2001-01-30
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EXPRESSED IN ADULT LIVER, SIGNAL =
EXPRESSED IN FETAL LIVER, SIGNAL =
EXPRESSED IN BONE MARROW, SIGNAL =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EXPRESSED IN BRAIN, SIGNAL = 0.81
SWISSPROT HIT: P26807, EVALUE 2.00e+00
EST_HUMAN HIT: AW438701.1, EVALUE 1.90e+00
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o. 62;
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LOCATION: (31)
OTHER INFORMATION:
US-09-925-302-509
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US-09-925-302-509
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; OTHER INFORMATION: US-09-764-847-592
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US-09-764-847-592
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                                                                                                                                             Prior application data removed -
NUMBER OF SEQ ID NOS: 2003
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 592
LENGTH: 84
                                                                                                                                                                                                                                                                                                                  Sequence 592, Application US/09764847 Patent No. US20020132767A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 509
LENGTH: 74
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                                                                                                                                                                                                                                                    APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
FILE REFERENCE: PC009
                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/09/764,847
CURRENT FILING DATE: 2001-01-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12 NUMBER OF SEQ ID NOS: 896
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CURRENT FILING DATE: 2001-08-10
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TITLE OF INVENTION: Nucleic Acids, Proteins and
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TYPE: PRT
                          NAME/KEY: SITE
LOCATION: (81)
                                                       NAME/KEY: SITE
LOCATION: (41)
OTHER INFORMATION:
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                                                                                                                    TYPE: PRT
ORGANISM: Homo sapiens
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100.08; F1
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Best Local Similarity
Thes 5; Conserve
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US-09-864-761-33499
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                                                                                                                                                                                                         SEQ ID NO 33499
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APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FO
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICHOARDAY
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PRIOR FILING DATE: 2000-08-03
PRIOR APPLICATION NUMBER: GB 24263.6
PRIOR FILING DATE: 2000-10-04
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CURRENT FILING DATE: 2001-05-23
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    OTHER INFORMATION: MAP TO AL035603.11 OTHER INFORMATION: EXPRESSED IN HBLLOO, OTHER INFORMATION: EXPRESSED IN ADULT L. OTHER INFORMATION: EXPRESSED IN FETAL L. OTHER INFORMATION: EXPRESSED IN LUNG, SI OTHER INFORMATION: EXPRESSED IN HELA, SI
                                                                                                                            FEATURE:
                                                                                                                                         ORGANISM: Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: PCT/US01/00669
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
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FILING DATE: 2001-01-30
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FILING DATE: 2001-01-30
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                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US 09/608,408 FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: PCT/US01/00670
                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/US01/00661 FILING DATE: 2001-01-30
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2001-01-29
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Pred. No.
      ADULT LIVER,
W FETAL LIVER,
W LUNG, SIGNAL
W HELA, SIGNAL
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0, SIGNAL = 3.
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75;
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; SOFTWARE: PatentIn Ver. 2; SEQ ID NO 1795; LENGTH: 92; TYPE: PRT; ORGANISM: Homo sapiens US-09-925-300-1795
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US-09-764-877-1490
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APPLICANT: Craig Rosen,
APPLICANT: Steve Ruben
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                                                                                                                                                                                                                                                                       Sequence 1490, Application US/09764877 Patent No. US20020147140A1 GENERAL INFORMATION:
APPLICANT: Rosen et al.
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                                                                                                                                           Prior application data removed - refer to PALM or file wrapper NUMBER OF SEQ ID NOS: 4031
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 1490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
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Best Local
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TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/925,300 CURRENT FILING DATE: 2001-08-10 PRIOR APPLICATION NUMBER: PCT/US00/05988 PRIOR FILING DATE: 2000-03-08
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                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/764,877
CURRENT FILING DATE: 2001-01-17
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                                              NAME/KEY: SITE LOCATION: (63)
                                                                               FEATURE:
                                                                                             TYPE: PRT
ORGANISM: Homo sapiens
                NAME/KEY:
                                 OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
                                                                                                                            ENGTH:
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les 5; Conserv
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R INFORMATION:
R INFORMATION:
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SITE (94)
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100.0%;
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IN PLACENTA, SIGNAL = 27
IN BT474, SIGNAL = 27
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Pred. No.
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Pred. No.
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IN BRAIN, SIGNAL = 7.5
HIT: P79103, EVALUE 9.00e-30
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3. 77;
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TITLE OF INVENTION: GLYCINE METABOLISM ENZYMES
FILE REFERENCE: BB1192 US CIP
CURRENT APPLICATION NUMBER: US/09/873,880
CURRENT FILING DATE: 2001-06-04
PRIOR APPLICATION NUMBER: 09/363,321
PRIOR FILING DATE: July 28, 1999
PRIOR FILING DATE: July 31, 1998
NUMBER OF SEQ ID NOS: 42
NUMBER OF SEQ ID NOS: 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , OTHER INFORMATION: Xaa equals any of the naturally occurring \ensuremath{\text{US-09-764-877-1490}}
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Best Local Similarity
Tatches 5; Conserv
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Best Local S
Matches
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APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FO
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
FILE REFERENCE: ACCOMPANY
CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                               Patent No. US20020048763A1
                                                                                PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR ETLING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: GB 24263.6
PRIOR APPLICATION NUMBER: GB 24263.6
                                PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                         APPLICANT: Penn, Sharron APPLICANT: Rank, David I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 97
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                              APPLICATION NUMBER: GB 24263.6 FILING DATE: 2000-10-04 APPLICATION NUMBER: US 60/236,359 FILING DATE: 2000-09-27
                 APPLICATION NUMBER: PCT/US01/00666
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Allen, Stephen M.
                                                                                                                                                                                                                                                                                                           Rank, David R.
Hanzel, David K.
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Pred. No.
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APPLICATION NUMBER: PCT/US01/00669 FILING DATE: 2001-01-30

APPLICATION NUMBER: PCT/US01/00664 FILING DATE: 2001-01-30

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                                                                                                CURRENT APPLICATION NUMBER: US/09/893,238
CURRENT FILING DATE: 2001-06-27
PRIOR APPLICATION NUMBER: 09/245,041
PRIOR FILING DATE: 1999-02-05
PRIOR APPLICATION NUMBER: 60/093,630
PRIOR FILING DATE: 1998-07-21
PRIOR APPLICATION NUMBER: 60/104,978
PRIOR FILING DATE: 1998-10-20
PRIOR FILING DATE: 1998-10-20
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NUMBER OF SEQ ID NOS: 129
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 126
LENGTH: 100
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Best Local
                                                                                                                                                                                                                                                                                                                      APPLICANT: Nagle, D. TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TREATMENT AND TITLE OF INVENTION: DIAGNOSIS OF BODY WEIGHT DISORDERS, INCLUDING OBESITY FILE REFERENCE: 7853-237
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Moore, K. APPLICANT: Nagle, D
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SEQ ID NO 40512
LENGTH: 99
TYPE: PRT
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PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
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OTHER INFORMATION: EXPRESSED IN ADDIT LIVER, SIGNAL = 2.1

OTHER INFORMATION: EXPRESSED IN FETAL LIVER, SIGNAL = 2.3

OTHER INFORMATION: EXPRESSED IN BRAIN, SIGNAL = 2.2

OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 2.1

OTHER INFORMATION: EXPRESSED IN HELA, SIGNAL = 2.1

OTHER INFORMATION: EXPRESSED IN BONE MARROW, SIGNAL = 2.6

OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 2.4

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 2.4

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 2.4

OTHER INFORMATION: SWISSPROT HIT: BB348588.1, EVALUE 3.006

OTHER INFORMATION: SWISSPROT HIT: P13784, EVALUE 2.20e-01
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OR APPLICATION NUMBER: PCT/US01/00663
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/US01/00662
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/US01/00661
OR FILING DATE: 2001-01-30
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APPLICATION NUMBER: US 09/608,408
FILING DATE: 2000-06-30
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FILING DATE: 2001-01-30
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5; Conserv
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100.0%; Pr
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HIT: BE348588.1, EVALUE 3.00e-09
HIT: P13784, EVALUE 2.20e-01
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b. 87;
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US-09-984-245-182
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US-09-758-308-2
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Best Local Similarity
Matches 5; Conserv
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Best Local :
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TITLE OF INVENTION: ANTIGENIC EPITOPES AND MOSAIC POLYPEPTIDES OF HEPATITIS C VIR
TITLE OF INVENTION: PROTEINS
FILE REFERENCE: 14114.034902
CURRENT APPLICATION NUMBER: US/09/758,308
CURRENT FILING DATE: 2001-01-10
                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/984,245
CURRENT FILING DATE: 2001-10-29
PRIOR APPLICATION NUMBER: 09/154,707
PRIOR FILING DATE: 1998-09-17
                                                                                                                                                                      PRIOR APPLICATION NUMBER: PCT/US98/05311
PRIOR FILING DATE: 1998-03-19
PRIOR APPLICATION NUMBER: US 60/041,277
PRIOR FILING DATE: 1997-03-21
PRIOR APPLICATION NUMBER: US 60/042,344
PRIOR FILING DATE: 1997-03-21
PRIOR APPLICATION NUMBER: US 60/041,276
PRIOR APPLICATION NUMBER: US 60/041,276
                                                      PRIOR APPLIANCE TO THE PRIOR FILING DATE: 1997-05-30 DATOR APPLICATION NUMBER: US 60/048,350
                                                                                                                  PRIOR APPLICATION NUMBER: US 60/041,281 PRIOR FILING DATE: 1997-03-21
                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Young et al.
TITLE OF INVENTION: 87 Human Secreted Proteins
FILE REFERENCE: PZ004P1
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TYPE: PRT
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PRIOR FILING DATE: 1999-07-10
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                                      PRIOR APPLICATION NUMBER: US OF PRIOR FILING DATE: 1997-05-30
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                                                                                                 PRIOR APPLICATION NUMBER: US 60/048,094
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  FILING DATE:
                      APPLICATION NUMBER: US 60/048,188
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PRIOR APPLICATION NUMBER: 09/154,707
PRIOR FILING DATE: 1998-09-17
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CURRENT FILING DATE: 2001-10-29
                                                                                                                                                                                                                                                                                                              FILE REFERENCE: PZ004P1
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TITLE OF INVENTION: 87 Human Secreted Proteins
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OR APPLICATION NUMBER: US 60/041,277
OR FILING DATE: 1997-03-21
OR APPLICATION NUMBER: US 60/042,344
OR FILING DATE: 1997-03-21
OR APPLICATION NUMBER: US 60/041,276
OR FILING DATE: 1997-03-21
OR APPLICATION NUMBER: US 60/041,281
OR APPLICATION NUMBER: US 60/041,281
OR FILING DATE: 1997-03-21
OR APPLICATION NUMBER: US 60/048,094
OR FILING DATE: 1997-05-30
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                                                                                                                                                                                           APPLICATION NUMBER: PCT/US98/05311 FILING DATE: 1998-03-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
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APPLICATION NUMBER: US 60/048,160
FILING DATE: 1997-05-30
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APPLICATION NUMBER: US 60/048,095
FILING DATE: 1997-05-30
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APPLICATION NUMBER: US 60/048,186
FILING DATE: 1997-05-30
APPLICATION NUMBER: US 60/048,069
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APPLICATION NUMBER: US 60/048,352
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APPLICATION NUMBER: US 60/048,355
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APPLICATION NUMBER: US 60/048,096
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5; Conserv
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0; Mismatches
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-984-245-321
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                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
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SEQ ID NO 321
                                                                                                                                                                                                                                          Patent No.
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                                                                                                                                                                                                                                                                                                                                                                                                             Matches
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CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
                                                                                                  TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY FILE REFERENCE: Aeomica-X-1
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                                                                                                                                                                                                                                                                                                                                              86 PYPDP
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APPLICATION NUMBER: US 6
FILING DATE: 1997-0F
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APPLICATION NUMBER: US 60/048,352
FILING DATE: 1997-05-30
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FILING DATE: 1997-05-30
APPLICATION NUMBER: US 60/048,099
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5; Conserva
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Conservative
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1997-08-05
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1997-05-30
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100.0%; Pred. No
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FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666

ביישבור: US 60/236,359 2000-09-27

FILING DATE: 2000-1: APPLICATION NUMBER:

APPLICATION NUMBER: GB

24263.6

APPLICATION NUMBER: US 09/632,366 FILING DATE: 2000-08-03

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RESULT 39
US-09-921-397-29
; Sequence 29, Application US/09921397
; Patent NO. US20020151484A1
; GENERAL INFORMATION:
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OTHER INFORMATION: EXPRESSED IN PLACENTY
OTHER INFORMATION: EXPRESSED IN HEART, 5
OTHER INFORMATION: EXPRESSED IN BT474, 5
OTHER INFORMATION: EXPRESSED IN BT474, 5
OTHER INFORMATION: EXPRESSED IN HELA, 50
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APPLICANT: HYBRIGENICS
TITLE OF INVENTION: SID nucleic acids and polypeptides selected TITLE OF INVENTION: pathogenic strain of the hepatitis C virus TITLE OF INVENTION: applications thereof FILE REFERENCE: B4809A - JAZ
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PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: US 09/774,203
PRIOR FILING DATE: 2001-01-29
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00663
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00669
FILING DATE: 2001-01-30
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APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
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APPLICATION NUMBER: PCT/US01/00662
FILING DATE: 2001-01-30
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FILING DATE: 2001-01-30
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SWISSPROT
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100.0%; Pr
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ED IN ADULT LIVER, SIGNAL = 4.2

ED IN BT474, SIGNAL = 4.6

ED IN LUNG, SIGNAL = 4.6

ED IN HELA, SIGNAL = 4.1

ED IN HELA, SIGNAL = 4.1

ED IN HBL100, SIGNAL = 4.1

ED IN HBL100, SIGNAL = 5.1

ED IN BONE MARROW, SIGNAL = 5.1

AN HIT: A1924653.1, EVALUE 3.00e-58

OT HIT: Q62718, EVALUE 2.00e-04
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94;
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APPLICANT:
APPLICANT:

APPLICANT: APPLICANT:

Retter, Marc W.

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RESULT 41
US-09-924-400-2
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US-09-925-301-1584
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Best Local S
Matches 5
                                                                     Sequence 2, Application US/09924400 Patent No. US20020165371A1 GENERAL INFORMATION:
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LENGTH: 112
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SEQ ID NO 1584
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                                         APPLICANT: Frudakis, Tony N. APPLICANT: Reed, Steven G.
                                                                                                                                                                                                                                                                                                                        NAME/KEY: SITE LOCATION: (99)
OTHER INFORMATION: X
NAME/KEY: SITE
LOCATION: (118)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: PCT/US00/05882
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
NUMBER OF SEQ ID NOS: 1694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: US/09/925, 301
CURRENT FILING DATE: 2001-08-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: EP 00402225.7 PRIOR FILING DAYE: 2000-08-03 NUMBER OF SEQ ID NOS: 156 SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/09/921,397
CURRENT FILING DATE: 2001-08-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: PA106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Rosen et al. TITLE OF INVENTION: Nuc
                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY: SITE
LOCATION: (60)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                      12 YPDPL 16
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5; Conserv
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Reed, Steven G.
Smith, John M.
Misher, Lynda E.
Dillon, Davin C.
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Pred. No.
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b. 1e+02;
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96;
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Wang, Aijun

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; ORGANISM: Homo sapiens
US-09-924-400-2
                                                                                                   RESULT 43
US-09-429-755-2
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                                                                                                                                                                                                                                                                                                      ; ORGANISM: Homo sapien US-09-810-936-2
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GENERAL INFORMATION:
APPLICANT: Frudakis;
APPLICANT: Smith, J
APPLICANT: Reed, St
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Frudakis, Tony N.
APPLICANT: Reed, Steven G.
APPLICANT: Smith, John M.
APPLICANT: Misher, Linda E.
APPLICANT: Dillon, Davin C.
APPLICANT: Retter, Marc W.
APPLICANT: Wang, Aijun
                                                                  Sequence 2, Application US/09429755A Patent No. US20020111467A1
                                                                                                                                                                                                                                                    Best
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LENGTH: 1:
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Best Local S
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LENGTH: 121
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Skelky, Yasir A.W.
APPLICANT: Harlocker, Susan L.
APPLICANT: Day, Craig H.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C11
CURRENT FILIN UNMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
NUMBER OF SEQ ID NOS: 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: COMPOSITIONS AND METHODS TITLE OF INVENTION: AND DIAGNOSIS OF BREAST FILE REFERENCE: 2.10.121. 41.9C12
CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2.001-08-07
NUMBER OF SEQ ID NOS: 340
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Day, (APPLICANT: Li, Sapplicant: Deng,
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                                                                                                                                                                    63 QEAYR
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Skeiky, Yasir A.W.
Harlocker, Susan L.
Day, Craig H.
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Li, Samuel X.
   Reed, Steven G
                  Frudakis, Tony N. Smith, John M.
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100.0%; Pr
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CURRENT APPLICATION NUMBER: US/09/429,755A
CURRENT FILING DATE: 1999-10-28
NUMBER OF SEQ ID NOS: 315
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 2
LENGTH: 121
TYPE: PRT
ORGANISM: Homo sapien
US-09-429-755-2
                                                                                                                                                                                                                                      Query Match
Best Local Similarity
"~+~hes 5; Conserv?
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                                                                                                                                      RESULT 45
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GENERAL INFORMATION:
APPLICANT: Krystek, Stanley R.
APPLICANT: Sheriff, Steven
APPLICANT: Witmer, Mark R.
APPLICANT: Hollenbaugh, Diane L.
                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS:
SOFTWARE: FastSEQ for
SEQ ID NO 59
LENGTH: 125
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Best Local Similarity
Matches 5; Conserv
                                                                                 Sequence 61, Application US/09853918 Patent No. US20020068346A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
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Patent No. US20020110563A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
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APPLICANT:
APPLICANT:
APPLICANT:
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APPLICANT: Kalos, Mchael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF
FILE REFERENCE: 210121.475C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Retter, Marc W.
APPLICANT: Dillon, Davin C.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST
FILE REFERENCE: 210121.419C6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Misher, Lynda APPLICANT: Retter, Marc W.
                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT FILING DATE: 2000-12-14
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Algate, Paul A.
Secrist, Heather
Indirias, Carol Yoseph
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Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fling,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Henderson, Robert A.
Lodes, Michael J.
                                                                                                                                                                                                                                                       Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                       for Windows Version
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100.0%; Pred. No. 1.1e+02;
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Pred. No. le+02;
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272
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                                      262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                              GenCore version 5.1.3
Copyright (c) 1993 - 2002 Compugen Ltd.
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Minimum DB Maximum DB seq length: 0 length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database : Issued_Patents_AA:*
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2: /cgn2_6/ptodata/1,
3: /cgn2_6/ptodata/1,
4: /cgn2_6/ptodata/1,
5: /cgn2_6/ptodata/1,
6: /cgn2_6/ptodata/1, /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
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/cgn2_6/ptodata/1/iaa/B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

Pred. No. score grea and is der greater t is the number of results predicted by chance to have a ater than or equal to the score of the result being printed, rived by analysis of the total score distribution.

SUMMARIES

27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	0	5	4	ω	2	_	No.	Result
51	52	52.5	52.5	52.5	53	53	53	53	53.5	54	54	57.5	62	70	70	70	70	70	242.5	266	266	266	266	266	266	266	Score	
18.8	19.1	19.3	19.3	19.3	19.5	19.5	19.5	19.5	19.7	19.9	19.9	21.1	22.8	25.7	25.7	25.7	25.7	25.7	89.2	97.8	97.8	97.8	97.8	97.8	97.8	97.8	Match Length	Ouery
334	11	486	12	12	2254	2254	431	431	486	106	106	423	13	43	13	13	13	13	48	86	51	50	50	49	49	49		
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US-08-482-385A-7	5168041-2	US-08-259-451-13	US-08-493-071-28	US-08-968-747-7	US-08-790-519-3	US-08-677-010-3	US-09-038-832-4	US-09-038-832-2	US-07-672-483-2	US-09-083-352-7	US-09-083-351-7	US-08-523-376-3	US-09-142-974B-5	US-08-652-816A-43	US-08-881-037-112	US-08-943-915-6	US-08-447-175A-13	US-08-796-598-13	5168041-1	5164483-3	5434245-4	5434245-3	5434245-2	5434245-1	5164483-2	5164483-1	ID	
Sequence 7, Appli	. 516	13,	28,	7,	Ψ	ω	4,	'n	2	Sequence 7, Appli	7,	ω	5,	43, 7	11	6, A	13,	Sequence 13, Appl	Patent No. 5168041	Patent No. 516448		No.	No.	Patent No. 5434245	Patent No. 516448	Patent No. 516448	Description	

RESULT 3 5434245-1

45	44	43	42	41	40	3 9	38	37	36	35	34	ω ω	32	31	30	29	28
49.5	49.5	49.5	49.5	49.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5	50.5
18.2	18.2	18.2	18.2	18.2	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
2396	2396	2396	393	393	1336	1336	1336	1336	1336	1336	771	771	771	771	771	771	477
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US-09-565-864-2	US-08-747-863-2	US-08-157-005-2	US-09-153-599A-11	US-08-979-917A-3	US-09-648-797-58	US-08-935-105A-58	US-08-940-035A-58	US-08-940-086A-58	US-08-486-273A-58	US-08-231-193A-58	PCT-US94-10151A-54	US-09-060-610-54	US-08-833-391-54	US-09-060-692-54	US-08-835-268-54	US-08-121-713D-54	US-08-136-922-2
Sequence 2	Sequence 2	Sequence 2	Sequence 1	Sequence 3	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 5	Sequence 2
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App1	Appli	Appli	Appl	Appli	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appl	Appli

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RESULT 2
5164483-2
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5164483-1
; Patent No. 5164483
; Patent No. 5164483
; APPLICANT: Takashi, Kurihara;Eiji, Taniyama;Sachio, Hirose
; TITLE OF INVENTION: Y-CARBOXYGLUTAMATE DERIVATIVE METHOD
; FOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALK
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                                                                                                                                                                          PATENT NO. 5164483

PARENT NO. 5164483

APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose TITLE OF INVENTION: Y-CARBOXYGLUTAWATE DERIVATIVE METHOD FOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALCIN UNMBER OF SEQUENCES: 3

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/575,639
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NUMBER OF SEQUENCES: 3
CURRENT APPLICATION NUMBER: US,
APPLICATION NUMBER: US,
                                                     Query Match

Best Local Similarity 98.0

Matches 48; Conservative
                                                                                                                                                           SEQ ID NO:2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 49; Conserv
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LENGTH: 49
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                                                                            97.8%;
98.0%;
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                                                                 0;
                                                             Score 266; DB 6;
Pred. No. 1.8e-30;
0; Mismatches 1;
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5434245-3
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5434245-2
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; APPLICANT: KOYAMA,
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                                                                                                                                                                                              ;Patent No. 5434245
; APPLICANT: KOYAMA, I
TITLE OF INVENTION:
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APPLICANT: KOYAMA, N
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APPLICATION NUMBER: US/07/993,980
FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
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                                                                                                                          CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/993,980
FILING DATE: 16-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 10
CURRENT APPLICATION DATA:
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                                                                                                                                                                                     SAME
                                                                                                             PRIOR APPLICATION DATA:
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                                                                                                                                                                     NUMBER OF SEQUENCES: 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 855,473; 444,786 FILING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786 FILING DATE: 01-DEC-1989
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EILING DATE: 23-MAR-1992; 01-DEC-1989

APPLICATION NUMBER: 444,786

EILING DATE: 01-DEC-1989
                                                                  APPLICATION NUMBER: 855,473; 444,786 FILING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786
                                         FILING DATE:
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                                                        01-DEC-1989
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POLYPEPTIDES AND
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POLYPEPTIDES AND METHOD
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Pred. No. 1.8e-30;
Pred. No. 3;
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PREPARING
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RESULT 8
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5164483-3
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5434245-4
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; APPLICANT: KOYAMA, NOBUTO;KIMIZUKA, FUSAO;KATO,
; TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR
                                                                                                                                                                                                                                                                                                        5164483-3
                                                     ;Patent No. 5168041
; APPLICANT: BERGMANN, ANDREAS E.
; TITLE OF INVENTION: METHOD FOR THE DETERMINATION
; OSTEOCALCIN IN HUMAN SERUM OR PLASMA
; ONDER OF SEQUENCES: 2
; NUMBER OF SEQUENCES: 2
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                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No. 5164483

APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hiro:
TITLE OF INVENTION: Y-CARBOXYCLUTAMATE DERIVATIVE METHOD
TOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOC.
FILING DATE:
SEQ ID NO:1:
                                                                                                                                                                                                                                                                                                                                                                                                        USING THE SAME
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Best Local S
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CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/07/993,980
FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 855,473; 444,786
FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/575,639
                            CURRENT APPLICATION DATA: APPLICATION NUMBER: US
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nes 49; Conserv
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46; Conserv
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Conservative 0;
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                             US/07/416,728
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Pred. No. 1.9e-30;
0; Mismatches 3
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Pred. No. 1.8e-30;
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5168041-1

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RESULT 10
US-08-447-175A-13
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US-08-796-598-13
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Sequence 13, Application US/08447175A
Patent No. 5869240
GENERAL INFORMATION:
APPLICANT: PATTERSON, DALE H.
TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING
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Best Local Similarity
Matches 46; Conserv
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Best Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: SYP-115
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
TELEFAX: (617) 248-7100
INFORMATION FOR SEQ ID NO: 13:
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COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
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APPLICATION NUMBER: US 01
FILING DATE: 19-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 19 MAY-1995
ATTORNEY/AGENT INFORMATION:
NAME: FLYNN ESG., Kerry A.
REGISTRATION NUMBER: 33,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: PATTERSON, DALE H.
APPLICANT: TARR, GEORGE E.
TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING
TITLE OF INVENTION: POLYMERS USING MASS SPECTROMETRY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/796,598 FILING DATE: 07-FEB-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: High
CITY: Boston
                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Patent Administrator - Testa, Hurwitz & ADDRESSEE: Thibeault
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Pred. No. 3.
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; MOLECULE TYPE:
US-08-447-175A-13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 6, Application US/08943915 Patent No. 5998170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
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INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US/08/447
FILING DATE: 19-MAY-1995
CLASSIFICATION: 422
ATTORNEY/AGENT INFORMATION:
NAME: RAUSCHENBACH, Kurt
REGISTRATION NUMBER: 40,137
                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: SY
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 02110
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                              APPLICANT: Danilenko, Dimitry
TITLE OF INVENTION: A FIBROBLAST GROWTH FACTOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
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TITLE OF INVENTION:
NUMBER OF SEQUENCES:
ATTORNEY/AGENT INFORMATION: NAME: Mazza, Richard J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                               STREET: 1840 DeHavilland Drive
CITY: Thousand Oaks
STATE: California
                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Patent Administrator - Testa, Hurwitz ADDRESSEE: Thibeault, LLP
                                CLASSIFICATION:
                                                  FILING DATE:
                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                 ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                        MATION, NO. 50.
Itoh, No. 50.
-in, Frank
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linear
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92.3%;
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Pred. No. 0.
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0.0012;
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VQY
                                                                                               ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-881-037-112
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US-08-881-037-112
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                              Query Match
Best Local Similarity
Matches 12; Conserv
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Best Local :
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GENERAL INFORMATION:
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION NUMBER: US/08/881,037
APPLICATION NUMBER: US/08/881,037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 27,657
REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION:
TELEPHONE: 805,447,4112
                                                                                                                                                              SEQUENCE CHARACTERISTICS LENGTH: 13 amino acid:
                                                                                                                                                                                                                                                                NAME: KONSKI, ANTOINETTE F.
REGISTRATION NUMBER: 34,202
REFERENCE/DOCKET NUMBER: 20
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                   ATTORNEY/AGENT INFORMATION: NAME: Konski, Antoinette
                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/443,540
FILING DATE: 18-MAY-1995
FILING DATE: 18-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Glick, Gary D.
APPLICANT: Swanson, Patrick C.
TITLE OF INVENTION: DNA BINDING ANTIBODIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: amino acid
STRANDEDNESS: sir
                                                                                                                                                                                                                                 TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Morrison & Foer: STREET: 755 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity 92.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 94304-1018
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o. 6080588
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92.3%;
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                              Score 70; DB 3; Le
Pred. No. 0.0012;
0; Mismatches 1;
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                                                               Length 13;
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                                                                     ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-652-816A-43
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 Matches
                                 Query Match
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                                                                                                                                                                              INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & STREET: 6300 Sears Tower, 233 South Wacker Drive
                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                         TELEPHONE: 312-474-6300
                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
NAME: David W. Clough
REGISTRATION NUMBER: 36,
                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 07-DEC-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
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APPLICATION NUMBER: GB 9:
FILING DATE: 02-DEC-1991
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Osbourn, JK
APPLICANT: Allen, DJ
APPLICANT: McCafferty, JG
                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: PCT/GB92/02240 FILING DATE: 02-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 23-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: GB 9: FILING DATE: 07-DEC-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: GB 9206372.6 FILING DATE: 23-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 24-MA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET: 6300 :
CITY: Chicago
                                                                                                                                                                                                                                                                                                         FILING DATE:
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Local Similarity es 12; Conserv
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                                                                                                                                         LENGTH:
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    Application US/08652816A
5872215

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                                                                                                                                       43 amino acids
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                                                                                                                                                                                                                                                                                                         01-JUN-1994
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                25.7%;
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Score 70; DB 2;
Pred. No. 0.0049;
0; Mismatches
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                                  Length 43;
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7 GAPVPYPDPLXPR 19

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RESULT 14 US-09-142-9748-5

Sequence 5, Application US/09142974B Patent No. 6451995

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GAPVPYPDPLEPR 35

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RESULT 15
US-08-523-376-3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 3, Application US/08523376 Patent No. 5808030
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Best Local Similarity 84.6%;
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LENGTH: 13
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TITLE OF INVENTION: Single Chain FV Constructs of Anti-Ganglioside GD2
TITLE OF INVENTION: Antibodies
FILE REFERENCE: MSK.P-013-USNP
CURRENT APPLICATION NUMBER: US/09/142,974B
CURRENT FILING DATE: 1998-09-18
PRIOR APPLICATION NUMBER: PCT/US97/04427
PRIOR FILING DATE: 1997-03-20
PRIOR APPLICATION NUMBER: 60/013,703
PRIOR APPLICATION NUMBER: 60/013,703
PRIOR FILING DATE: 1996-03-20
NUMBER OF SEQ ID NOS: 5
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APPLICANT: Larson, Steven M.
APPLICANT: Guo, Hong-ren
APPLICANT: Riviin, Ken
FILING DATE:
CLASSIFICATION: 536
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 293-7060
TELEFAX: (202) 293-7860
TELEFAX: 6491103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENGTH: 13
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                       COUNTRY: United States
ZIP: 20037-3202
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                              SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: Sughrue, Mion, Zinn, Macpeak & Seas
STREET: 2100 Pennsylvania Avenue, N.W.
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Sadahito, SIN TITLE OF INVENTION: hTFIIIA GENE NUMBER OF SEQUENCES: 8
                                                                                                                                                                                                                                                                                                         STREET: 2100 Penr
CITY: Washington
STATE: D.C.
                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 GAPVPVPDPLEPR 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  : Tsutomu, FUJIWARA
: Satoshi, TAKEDA
: Yoshikazu, SHIMADA
: Kouichi, OZAKI
: Cadakii
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                                                                                                                      US/08/523,376
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Pred. No. 0.016;
0; Mismatches 2; Indels
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               Search completed: December
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Job time : 14 secs
                                                                                                                           Query Match 21.1
Best Local Similarity 36.6
Matches 15; Conservative
                                                                                                                                                                                                                                                                        INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                            MOLECULE TYPE: protein
                                                             86 APTP-PRPALPRRFICSF-PDCSANYSKAWKLDAHLCKHTG 124
                                                                                                                                                                                                                           TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                          LENGTH: 423 amino acids
                                                                                             8 APVPYPDPLXPRRXVCXLNPDCD-----ELADHIG 37
                                                                                                                                          21.1%;
36.6%;
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Pred. No. 4;
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Post-processing: Minimum Match 0%
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Listing first 45 summaries
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Maximum DB seq
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Perfect score:
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length: 2000000000
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Gapop 10.0 , Gapext 0.5
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272
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103943 seqs, 16242309 residues
                                                                                                                                                                                                                                                                                                                                                            Published_Applications_AA:*
l: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd.
                                                                                                                                                                                                                     /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
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Cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
Cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
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72.352 Million cell updates/sec
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

10 11 11 12 13 14 15 16	1500 A 10 10 C 12	Result No.
54.5 54.5 54.5 53.5 52.5 52.5 50.5 51.5 51.5 51.5 51.5 51.5 51.5 51	70 70 70 55 55 55	Score
20.0 19.9 19.5 19.5 19.5 19.1 19.1 18.8	25.7 25.7 21.9 20.2	% Query Match Length
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6 0 10 10 10 10 10 10 10 10 10 10 10 10 1	100000	DB
US-09-815-242-13925 US-09-815-242-13925 US-09-814-7778-2 US-09-814-7778-4 US-09-972-714-10 US-09-75-088-2 US-09-755-088-2 US-09-797-039-5 US-09-999-248-4 US-09-945-901-58	US-09-822-485-29 US-09-801-968-21 US-09-858-349-2 US-09-815-242-10210 US-09-814-777A-18 US-09-814-777A-10 US-09-814-777A-10	ID
Sequence 1992, Appli Sequence 19925, A Sequence 47, Appli Sequence 4, Appli Sequence 10, Appli Sequence 2, Appli Sequence 2, Appli Sequence 5, Appli Sequence 5, Appli Sequence 66, Appli Sequence 67, Appli Sequence 4, Appli Sequence 58, Appli	29, A 21, A 21, A 21, A 10210 15, A 18, A 20, A	Description

45	44	43	42	41	40	39	38	37	36	35	34	သ	32	31	30	29	28	27	26	25	24	23	22	21	0.7
45	45.5	45.5	45.5	46	46	46	46	46	46	46	46.5	46.5	46.5	46.5	47	47	47	47	47	48	48	48	50	50	00.0
16.5	16.7	16.7	16.7	16.9	16.9	16.9	16.9	16.9	16.9	16.9	17.1	17.1	17.1	17.1	17.3	17.3	17.3	17.3	17.3	17.6	17.6	17.6	18.4	18.4	10.0
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US-09-841-132-571	US-09-909-088B-18	us-09-909-320-18	US-09-905-291A-18	US-09-767-479-10	US-09-995-542-5	US-09-858-194-2	US-09-995-542-6	US-09-995-542-8	US-09-799-875-2	US-09-764-864-1154	US-09-764-864-1338	US-09-764-864-888	US-09-925-301-1380	US-09-799-848-5	US-10-008-739A-2	US-09-981-353-50	US-09-795-693-21	US-09-815-242-11699	US-10-041-406-6	US-09-925-301-1018	US-09-833-503A-4	US-09-925-299-1151	US-09-846-808-20	US-09-841-132-501	00 TO 001 141 70
571	Sequence 18, Appl	Sequence 18, Appl	Sequence 18, Appl	_	Sequence 5, Appli		Sequence 6, Appli	Sequence 8, Appli	Sequence 2, Appli	Sequence 1154, Ap	Sequence 1338, Ap	Sequence 888, App	Sequence 1380, Ap	Sequence 5, Appli	Sequence 2, Appli	Sequence 50, Appl	Sequence 21, Appl	Seguence 11699, A	Sequence 6, Appli	Sequence 1018, Ap	Sequence 4, Appli	Sequence 1151, Ap	Sequence 20, Appl	Sequence 501, App	rddw 'or annead

ALIGNMENTS

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; GENERAL INFORMATION:
   APPLICANT: Itch, No. US20020001825A1uyuki
   TITLE OF INVENTION: No. US20020001825A1e1 Fibroblast Growth Factor-Like Polypeptid
   FILE REFERENCE: 08035,0001-01000
   CURRENT APPLICATION NUMBER: US/09/822,485
   CURRENT FILING DATE: 2001-04-02
   NUMBER OF SEQ ID NOS: 35
   SOFTWARE: PatentIn Ver. 2.0
   SEQ ID NO 29
   LENGTH: 13
Sequence 21, Application US/09801968
Patent No. US20020082205A1
GENERAL INFORMATION:
APPLICANT: Itch, No. US20020082205A1uyuki
APPLICANT: Kavanaugh, W. Michael
TITLE OF INVENTION: HUMAN FGF-23 GENE AND GENE EXPRESSION
TITLE OF INVENTION: PRODUCTS
FILE REFERENCE: PP-17150.001/201130.40901
CURRENT APPLICATION NUMBER: US/09/801,968
CURRENT APPLICATION UMBER: US/09/801,968
CURRENT FILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Description of Artificial Sequence:protein tag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
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1 GAPVPYPDPLEPR 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER INFORMATION: E tag US-09-801-968-21
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Best Local Similarity
"hes 12; Conserv
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US-09-858-349-2
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SEQ ID NO 2
LENGTH: 136
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                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                          Sequence 10210, Application US/09815242 Patent No. US20020061569A1
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/858,349
CURRENT FILING DATE: 2000-06-02
NUMBER OF SEQ ID NOS: 16
                                                                                                                           APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 87534-2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: SMALL FUNCTIONAL UNITS OF ANTIBODY HEAVY CHAIN VARIABLE REGIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: PLAKSIN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: FastSEQ for Windows Version EQ ID NO 21
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                                                                                                                                                                                                                                                                                                                     APPLICANT: Haselbeck, Robert
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: mouse hybridoma specific for H-2D + RGPGRAFVTI peptide
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Local Similarity 92.3%;
nes 12; Conservative
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                                                                                                                                                                                                         Carr, Grant J.
Yamamoto, Robert T.
                                                                                                                                                                                                                                                             Wall, Daniel
                                                                                                                                                                                                                                                                              Ohlsen, Kari L.
Zyskind, Judith W.
                                                                                                                                                                                                                                               Trawick, John D.
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92.3%;
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Pred. No. 0.00085;
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US-09-814-777A-15

; Sequence 15, Application US/09814777A

; Patent No. US20020142415A1
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US-09-814-777A-18
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PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                            Sequence 18, Application US/09814777A Patent No. US20020142415A1
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SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 12210
              SOFTWARE: PatentIn version 3.0 SEQ ID NO 18 LENGTH: 384
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Best Local Similarity
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APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
                                                                                                                                                                           APPLICANT: KOOPMAN, Peter Anthony APPLICANT: MUSCAT, George Eugene Orlando TITLE OF INVENTION: NOVEL POLYPEPTIDES AND FILE REFERENCE: 21415-0003
                                                                                          PRIOR APPLICATION NUMBER: AU PQ6457 PRIOR FILING DATE: 2000-03-24
                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
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PRIOR FILING DATE: 2000-03-24
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                                                                            NUMBER OF SEQ ID NOS: 128
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TYPE: PRT
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TYPE: PRT
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Pred. No. 1.9;
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3.6;
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Sequence 20, Application US/09814777A

Patent No. US20020142415A1

GENERAL INFORMATION:
APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
ITILE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USTILE REFERENCE: 21415-0003

CURRENT APPLICATION NUMBER: US/09/814,777A

CURRENT FILING DATE: 2001-03-23

PRIOR APPLICATION NUMBER: MU PO6457

PRIOR APPLICATION NUMBER: MU PO6457

PRIOR APPLICATION NUMBER: MU PO6457

PRIOR FILING DATE: 2000-03-24

NUMBER OF SEQ ID NOS: 128

SOFTWARE: PATENT NOS: 128

SOFTWARE: PATENT NOS: 128

TYPE: PRI
DECATE: 1000-20
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; NAME/KEY: misc_feature
; LOCATION: (679)..(1919)
; OTHER INFORMATION: EXON 2
US-09-814-777A-18
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                                                                          ; ORGANISM: Human
US-09-814-777A-100
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                                                                                                       APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USING THEM
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
PRIOR APPLICATION NUMBER: AU PQ6457
PRIOR FILING DATE: 2000-03-24
NUMBER OF SEQ ID NOS: 128
SOFTWARE: Patentin version 3.0
SEQ ID NO 100
LENGTH: 470
TYPE: PRT
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Best Local :
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Best Local Similarity 62.9
Matches 10; Conservative
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                                     Query Match
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                   Local Similarity
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Local Similarity 62.58;
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                   20.2%;
                   Score 55; DB 10; Length 470; Pred. No. 5.2;
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Pred. No.
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 Mismatches
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PRIOR FILLING DATE: 2000-03-21
PRIOR PELLING DATE: 2000-03-21
PRIOR FILLING DATE: 2000-05-23
PRIOR FILLING DATE: 2000-05-23
PRIOR FILLING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR PELLING DATE: 2000-10-23
PRIOR FILLING DATE: 2000-10-23
PRIOR FILLING DATE: 2000-11-27
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 11921
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APPLICANT:
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Best Local Similarity
APPLICANT: Carr, Grant J.
APPLICANT: Yamamoto, Robert T.
APPLICANT: Yamamoto, Robert T.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
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TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
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PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
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Trawick, John D.
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Zyskind, Judith W.
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Pred. No. 9.
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2000-03-21

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RESULT 12
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Sequence 47, Application US/09924358; Patent No. US20020107376A1; GENERAL INFORMATION:
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US-09-815-242-13925
                                                             Sequence 2, Application US/09814777A Patent No. US20020142415A1 GENERAL INFORMATION:
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LENGTH: 704
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LENGTH: 216
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Best Local
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Best Local (
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APPLICANT: MacBeth, Kyle
TITLE OF INVENTION: 26194, 33530, 33949, 47148, 50226, AND
TITLE OF INVENTION: 58764,
TITLE OF INVENTION: NOVEL HUMAN TRANSFERASE FAMILY MEMBERS AND USES THEREFOR
EILE REFERENCE: 38155-20034.00
CURRENT APPLICATION NUMBER: US/09/924,358
CURRENT FILING DATE: 2001-08-06
PRIOR APPLICATION NUMBER: US 60/229,300
PRIOR EILING DATE: 2000-09-01
APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES
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APPLICANT: Meyers, Rachel
APPLICANT: MacBeth, Kyle
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PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
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SOFTWARE: FastSEQ for Windows Version 4.0
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PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
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                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
                                                                                                                                                                                                    200 YLGPPIPYPENLTPQ 214
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les 12; Conserv
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Pred. No. 9.5;
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    AND METHODS OF USING
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RESULT 14
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US-09-814-777A-4
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SEQ ID NO 2
LENGTH: 468
                                                                                     GENERAL INFORMATION:
APPLICANT: FOUSSIAS, George
APPLICANT: Diamandis, Eleftherios
TITLE OF INVENTION: NOVEL SIGLEC GENE
FILE REFERENCE: 1175.560501
CURRENT APPLICATION NUMBER: US/09/972,714
CURRENT FILING DATE: 2001-10-05
SOFTWARE: PatentIn version 3.1 SEQ ID NO 10
                                                                                                                                                                                                                    Sequence 10, Application US/09972714 Patent No. US20020106738A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 4
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Best Local Similarity
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APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
PRIOR APPLICATION NUMBER: AU P06457
PRIOR FILING DATE: 2000-03-24
                                PRIOR APPLICATION NUMBER: US 60/239,007
PRIOR FILING DATE: 2000-10-06
NUMBER OF SEQ ID NOS: 15
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SOFTWARE: PatentIn ver
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TYPE: PRT
ORGANISM: Mouse
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LOCATION: (1)..(2128)
NAME/KEY: misc_feature
LOCATION: (2315)..(3472)
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ORGANISM: Mouse
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Local Similarity 56.2%;
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Pred. No. 9
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Pred. No. 9.6;
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Sequence 2. Application US/09765068

Patent No. US20020038009A1

GENERAL INFORMATION:

APPLICANT: Donoho, Gregroy

APPLICANT: Hilbun, Erin

APPLICANT: Turner, Alex

APPLICANT: Zambrowicz, Brian

APPLICANT: Sands, Arthur T.

APPLICANT: Sands, Arthur T.

FITLE OF INVENTION: No. US20020038009A1el Human Kinase Protein and

FITLE OF INVENTION: No. US20020038009A1el Human Kinase Protein and

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FITLE OF INVENTION: NO. US2002038009A1el Huma
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-765-068-2
Search completed: December 4, 2002, 15:48:59 Job time : 12 secs
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; TYPE: PRT
; ORGANISM: Homo sapiens
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Best Local Similarity 53.8%;
Matches 7; Conservative
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Best Local Similarity 38.5%;
Matches 10; Conservative
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324 YAYDWVGRPIPTP 336
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188 MISWIGASVSSPGPTTARSSVLTLTP 213
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Pred. No. 10;
2; Mismatches 14; Indels
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GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd

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Database :
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Maximum DB seq length: 2000000000
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Perfect score:
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1 YLYQWLGAPVPYPDPLXP
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224.056 Million cell updates/sec
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

ರಬ⇔ಬಬ⊢	Result No.
222222 5666666666666666666666666666666	Score
97.8 97.8 97.8 97.8 97.8	Query Match
44444 00000	Length DB
13 13 13 18	8
PCT-USO2-22821-108 US-08-973-667-1 US-08-973-667-2 US-08-973-667-3 US-08-973-667-4 US-08-973-667-4 US-09-462-931-2	Length DB ID
Sequence 108, Appli Sequence 1, Appli Sequence 2, Appli Sequence 3, Appli Sequence 4, Appli Sequence 2, Appli	Description

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74.5	74.5	74.5		٠.	٠.	4.	٠.	٠	5	75.5	5		5	5	5	5	75.5	•	77	77	113	113	185	213	213	213	\mathbf{H}	N		247				σ	σ	266	σ
27.4	27.4	27.4	27.4	27.4	27.4	27.4	7.	7.	27.8	7.	7.	27.8	7.	7.				27.8				۲.	8	8		8	0		7.	0	7	7	7.	7	7.	97.8	7.
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US-10-253-493-2179	-10-253-471-2	-10-253-471-2	-09-962-756-	-09-962-756-2	-US02-30412-2	-US02-30412-214	-US02-30312-217	-US02-30312-2	53-493-214	-10-253-471-214	US-09-962-756-2143	-US02-30412-214	-US02-30312-214	US-10-253-493-2166	-10-253-471-2	09-962-756-216	US02-30412-216	-US02-30312-216	08-246-626-1	07-717-811A	08-246-626-1	7-717-811A-1	-09-036-085-	60-169-840-5	-60-163-123-1	-60-160-203-3	-US01-08655-4	-09-036-085-5	-09-657-276-109	09-657-276-10	-10-217-651-3	10-143-899-	12010-3	T-US01-08	-08-246-6	07-717-811A-	US-10-197-954-108
Sequence 2179, Ap	2179,	ы	e 2179,	e 2147,	2179,	2147,		2147, 🏞	2143,	2143,	e 2143,	N	2143, F	e 2166,	e 2166,	ce 2166,	e 2166,	2166	12,	12,	10,	10, 🏞	22, Ap	5089,	e 1219,	e 3372	478,	5, App	1095,	1093,	e 336,	e 23	3, A	equence 186	'n	5, App	Sequence 108, App

ALIGNMENTS

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Sequence 108, Application PC/TUS0222821

Sequence 108, Application PC/TUS0222821

Sequence 108, Application PC/TUS0222821

Sequence 108, Application PC/TUS0222821

APPLICANT: Hypharmaceuticals, Inc.

APPLICANT: Koister, Hubert

APPLICANT: Siddiq1, Suhaib

APPLICANT: Little, Daniel

TITLE OF INVENTION: Capture Compounds, Collections Thereof

TITLE OF INVENTION: Compositions

FILE REFERENCE: 24743-2305

CURRENT FILING DATE: 2002-07-16

PRIOR APPLICATION NUMBER: 60/306,019

PRIOR APPLICATION NUMBER: 60/314,123

PRIOR APPLICATION NUMBER: 60/314,123

PRIOR APPLICATION NUMBER: 60/363,433

PRIOR FILING DATE: 2001-07-16

PRIOR APPLICATION NUMBER: 60/363,433

PRIOR FILING DATE: 2002-03-11

NUMBER OF SEQ ID NOS: 149

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 108

LENGTH: 49

TYPE: PRT

ORGANISM: Homo Sapien

PCT-US02-22821-108

97.8%; Score 266; DB 1; Length 49;
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93.9%;

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RESULT 2
US-08-973-667-1
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В
                                                                                                                                 ; LOCATION: 21
; OTHER INFORMATION: /product= "Gla"
US-08-973-667-1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity 93. Matches 46; Conservative
                                                                Matches
                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 9-43331
APPLICATION NUMBER: 27-FEB-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 22201-4741
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                   MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP97/01246
FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: MORIMOTO, Shigeto
TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Reli
CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: PatentIn Release #1.0,
                                                                Local Similarity nes 47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: JP 8-
FILING DATE: 10-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                       REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 423-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE: 10-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: NIXON & VANDERHYE P. STREET: 1100 North Glebe Rd. 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                     ORGANISM:
                                                                                                                                                                                                                                                                  TOPOLOGY:
                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Crawford, Arthur R.
                                                                                                                                                                                   NAME/KEY:
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               1 YLYQWLGAPVPYPDPLXPRRXYCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                   ENGTH:
YLYQWLGAPVPYPDPLEPRRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                Conservative
                                                                                                                                                                                                                     Human
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                                                                                                                                                                                  Modified-site
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                                                                              97.8%;
95.9%;
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                                                                              Pred. No. 3.6e-28;
                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Version #1.30
                                                                                                 Length 49;
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RESULT 3
US-08-973-667-2
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                                                                                                                                                                                                                                                                 ; NAME/KEY: Modified-site LOCATION: 21 CORTER INFORMATION: /product= "Gla" US-08-973-667-2
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                                                                                                                                                                      Query Match
Best Local :
                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
FILING DATE: 10-DEC-199
CLASSIFICATION: 435
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APPLICANT:
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TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: JP 9
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: JP 8 FILING DATE: 10-APR-1996 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 10-APR-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: 1
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ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
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OPERATING SYSTEM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS
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18; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٧A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                49 amino acids
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Kimura, Terutoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PatentIn Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Modified-site
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10-APR-1997
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                                                                                                                                                                      97.8%;
98.0%;
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                                                                                                                                                                      Score 266; DB 13;
Pred. No. 3.6e-28;
                                                                                                                                                                                                                                                                                                                                                                                                                                    "Gla"
                                                                                                                                           Mismatches
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8th floor
                                                                                                                                                                                                        Length 49
                                                                                                                                           Indels
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US-08-973-667-3 RESULT 4

0;

Sequence 3, Application US/08973667 GENERAL INFORMATION:

Sakakibara, Shunpei

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RESULT 5
US-08-973-667-4
                                                                                                                                                                                                                                                                                                         ; NAME/KEY: Modified
; LOCATION: 21
; OTHER INFORMATION:
US-08-973-667-3
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                                                                       Sequence 4, Application US/08973667 GENERAL INFORMATION:
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APPLICATION NUMBER: JP 8-8

FILING DATE: 10-APR-1996

PRIOR APPLICATION NUMBER: JP 9-4

APPLICATION NUMBER: JP 9-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein ORIGINAL SOURCE:
                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILLING CALLS AND ASSISTICATION: 435
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: PCT/JP97/01246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELECOMMUNICATION INFORMATION: TELEPHONE: 703-816-4000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION:
NUMBER OF SEQUENCES:
      CITLE OF INVENTION:
                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                     LOCATION: 17
OTHER INFORMATION: /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME: Crawford, Arthur R. REGISTRATION NUMBER: 25,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 10-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/
FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY: USA
ZIP: 22201-4741
                                                                                                                                                                                                                                       Match 97.8%;
Local Similarity 98.0%;
les 48; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
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                                                                                                                                                                                        1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                                                                                                                                      YLYQWLGAPVPYPDPLXPRRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Morimoto, Shigeto
VENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
Morimoto, Shigeto
VENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               703-816-4100
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                                    Sakakibara, Shunpei
Kimura, Terutoshi
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                                                                                                                                                                                                                                                                                                                                                          Modified-site
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
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                                                                                                                                                                                                                                     Score 266; DB 13;
Pred. No. 3.6e-28;
0; Mismatches 1;
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; OTHER INFORMATION:
US-08-973-667-4
RESULT 6
US-09-462-931-2
                                                                                                   Query Match
Best Local Similarity
"hes 49; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 703-816-4100
                                                                                                                                                                                                                                  OTHER INFORMATION:
FEATURE:
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ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION:
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APPLICATION NUMBER:
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MEDIUM TYPE: Floppy disk
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CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US/0 FILING DATE: 10-DEC-1997 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 25
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: JP 8-88608 FILING DATE: 10-APR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM:
                                                                                                                                                                                                                       NAME/KEY:
                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: /product-
                                                                                                                                                                                                                                                                                                                                                                    ORGANISM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
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                                                                                     1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
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1100 North Glebe Rd. 8th
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SYSTEM: PC-DOS/MS-DOS
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                                                                                                                                97.8%;
100.0%;
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                                                                                                                 Score 266; DB 13;
; Pred. No. 3.6e-28;
0; Mismatches 0;
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                                                                                                                                              Length 49;
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                                                                                                                 Gaps
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Sequence 2, Application US/09462
GENERAL INFORMATION:
APPLICANT: HELLMAN, Jukka
APPLICANT: KKENEN, Sanna-Maria
APPLICANT: KARP, Matti

Application US/09462931

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APPLICANT:

LTVGREN, Timo

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                                                                                                                                                                                                                                                                                   ; ORGANISM: Homo Sapien US-10-197-954-108
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                                                                     RESULT 8
US-07-717-811A-5
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Best Local Similarity
Matches 46; Conserv
Sequence 5, Application US/07717811A GENERAL INFORMATION:
APPLICANT: Hiroshi EGUCHI et al.
TITLE OF INVENTION: Recombinant |
                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: FastSEQ
SEQ ID NO 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 108, Applic GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: VNNEN, Kalervo
APPLICANT: PETTERSSON, Kim
TITLE OF INVENTION: Isolated osteocalcin fragments
FILE REFERENCE: Isolated osteocalcin fragments
CURRENT APPLICATION NUMBER: US/09/462,931
CURRENT FILING DATE: 2000-01-18
PRIOR APPLICATION NUMBER: PCT/F198/00550
PRIOR APPLICATION NUMBER: PCT/F198/00550
PRIOR APPLICATION NUMBER: F1973371
                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Capture Compounds, Collections Thereof TITLE OF INVENTION: And Methods For Analyzing The Proteome TITLE OF INVENTION: Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR FILING DATE: 1997-08-15
NUMBER OF SEQ ID NOS: 4
                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 60/314,123
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR FILING DATE: 2002-03-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILE REFERENCE: 24743-2305
CURRENT APPLICATION NUMBER: US/10/197,954
CURRENT FILING DATE: 2002-07-16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/306,019 PRIOR FILING DATE: 2001-07-16
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ORGANISM: Homo sapiens
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                       LENGTH: 49
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les 46; Conservative
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                                                                                                                                                                                                                                97.8%;
93.9%;
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 EGUCHI et al.
Recombinant Human Osteocalcin
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93.9%;
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Pred. No. 3.6e-28;
0; Mismatches 3;
                                                                                                                                                                                                                                  Score 266; DB 25;
Pred. No. 3.6e-28;
                                                                                                                                                                                                                 Mismatches
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                                                                                                                                                                                                                                                  DB 25;
                                                                                                                                                                                                                                                Length 49;
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US-07-717-811A-5
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REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8856
TELEFAX: 202-371-8856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: DisplayMite
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/
FILING DATE: 19910619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION: NAME: Warren M. Cheek Jr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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COMPUTER READABLE FORM:
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                            POSITION IN GENOME: CHROMOSOME/SEGMENT: MAP POSITION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FRAGMENT TYPE: ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                   OTHER INFORMATION: PUBLICATION INFORMATION
                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ANTI-SENSE:
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            DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES
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TYPER: IBM Compatible
MS-DOS
                                                                           ISSUE:
PAGES:
DATE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
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                                                                                                                          VOLUME:
                                                                                                                                        JOURNAL:
                                                                                                                                                       TITLE:
                                                                                                                                                                       AUTHORS:
                                                                                                                                                                                                                  IDENTIFICATION METHOD:
                                                                                                                                                                                                                                    LOCATION:
                                                                                                                                                                                                                                                NAME/KEY:
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                 IN SEQ ID NO:
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US-08-246-626-5
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Best Local !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: DisplayWrite
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/246,626
FILING DATE: 20-MAY-1994
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
FILING DATE: 05-OCT-1993
ATTORNEY/AGENT INFORMATION:
NAME: WARTEN M. Cheek Jr.
NAME: WARTEN M. Cheek Jr.
PROISTENDATION WITHBER: 33-367
                                                                                                                                                                                                                                                                                                                                                                       INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: BULLING CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
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                                                                                                                                                                                                                                FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                              HYPOTHETICAL:
ANTI-SENSE:
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                              POSITION IN GENOME:
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                                                                            IMMEDIATE SOURCE:
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 CHROMOSOME/SEGMENT: MAP POSITION:
                                                                                                                          CELL TYPE:
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DEVELOPMENTAL STAGE:
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805 Fifteenth Street, N.W., #700
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                            RESULT 11
PCT-US01-12010-3
Sequence 3, Application PC/TUS0112010 GENERAL INFORMATION:
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; TYPE: PRT; ORGANISM: Homo sapiens PCT-US01-08655-186
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SEQ ID NO 186
LENGTH: 100
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Matches 46; Conserv
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Best Local :
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Best Local
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CURRENT FILING DATE: 2001-04-16
                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 09/695,783 PRIOR FILING DATE: 2000-10-24
                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 09, PRIOR FILING DATE: 2000-09-22
                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 09/522,929
PRIOR TILING DATE: 2000-04-18
PRIOR APPLICATION NUMBER: 09/770,160
PRIOR FILING DATE: 2001-01-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Hyseq, Inc
TITLE OF INVENTION: NOVEL MACROPHAGE NUCLEIC ACIDS AND POLYPEPTIDES
FILE REFERENCE: 21272-065
                                                                                                                                                                                                         NUMBER OF SEQ ID
                                                                                                                                                                                                                         PRIOR FILING DATE:
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PUBLICATION INFORMATION:
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JOURNAL:
Local Similarity
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PUBLICATION DATE:
RELEVANT RESIDUES
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                                                         Conservative
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93.9%;
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Pred. No. 8e-28;
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APPLICANT: Genaissance Pharmaceuticals, Inc.

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US-10-217-651-336
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US-10-143-899-23
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                                                             Sequence 336, Application US/10217651
GENERAL INFORMATION:
APPLICANT: Rosen et al.
                                                                                                                                                                                                                                           Best Loc
Matches
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GENERAL INFORMATION:
APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PT247CIN
CURRENT APPLICATION NUMBER: US/10/143,899
CURRENT FILING DATE: 2002-05-14
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SEQ ID NO 23
LENGTH: 127
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Best Local
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TITLE OF INVENTION: Nucleic Acids, Proteins, FILE REFERENCE: PUZIICIN CURRENT APPLICATION NUMBER: US/10/217,651 CURRENT FILING DATE: 2002-08-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION NUMBER: PCT/US01/12010
CURRENT FILING DATE: 2001-04-11
PRIOR APPLICATION NUMBER: 60/195,840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Stephens, J. Claiborne
TITLE OF INVENTION: Haplotypes of the BGLAP
FILE REFERENCE: MWH-0512PCT BOT //12011/12011/
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TYPE: PRT
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                                                                                                                                                                                                                                                                                                                  NAME/KEY: misc_feature LOCATION: (64)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino
                                                                                                                                                                                                                                                                                                                                                                                    OTHER INFORMATION: Xaa
                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: misc_feature LOCATION: (18)
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Chew, Anne
Choi, Julie Y.
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FILING DATE: 2000-10-20
APPLICATION NUMBER: 60/244,617
                                                                                                              APPLICATION NUMBER: FILING DATE: 2000-1:
                                                                                                                                                                           APPLICATION NUMBER: 60/
FILING DATE: 2000-08-14
                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/236,327 FILING DATE: 2000-09-29
                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/220,964 FILING DATE: 2000-07-26
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APPLICATION NUMBER:
FILING DATE: 2000-08
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APPLICATION NUMBER:
FILING DATE: 2000-0
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 FILING DATE APPLICATION
                  APPLICATION NUMBER: 60/
FILING DATE: 2000-09-25
                                               APPLICATION NUMBER: 60/
FILING DATE: 2000-09-01
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                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/241,809 FILING DATE: 2000-10-20
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/228,924 FILING DATE: 2000-08-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/234,274 FILING DATE: 2000-09-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
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FILING DATE: 2000-08-22
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APPLICATION NUMBER: 60/225,757
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/217,496 FILING DATE: 2000-07-11
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DATE:

60/234,997

2000-12-08

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60/234,223

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2000-12-08

60/235,834

60/251,869

2000-07-07

60/216,880

2000-08-14

60/216,647 60/226,868 2000-07-26

60/218,290

2000-08-14

60/225,758

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2000-01-

60/180,628 60/179,065 09/760,491

PRIOR PRIOR PRIOR

FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/
FILING DATE: 2000-09-05
APPLICATION NUMBER: 60/

60/236,367 60/229,509 APPLICATION NUMBER: 60/231,413

APPLICATION NUMBER: 60/229,513 FILING DATE: 2000-09-05

APPLICATION NUMBER: FILING DATE: 2000-0

60/229,287 60/229,345

APPLICATION NUMBER: FILING DATE: 2000-0

2000-09-01 2000-09-01 2000-09-0

FILING DATE: 2000-09-29
APPLICATION NUMBER: 60/237,039
FILING DATE: 2000-10-02

2000-10-02

APPLICATION NUMBER: 60/237,038 FILING DATE: 2000-10-02

OR APPLICATION NUMBER: 60/236,370
OR FILING DATE: 2000-09-29
OR APPLICATION NUMBER: 60/236,802
OR FILING DATE: 2000-10-02
OR APPLICATION NUMBER: 60/237,037
OR FILING DATE: 2000-10-02
OR APPLICATION NUMBER: 60/237,040
OR FILING DATE: 2000-10-02
OR APPLICATION NUMBER: 60/240,960
OR FILING DATE: 2000-10-02
OR APPLICATION NUMBER: 60/240,960
OR APPLICATION NUMBER: 60/239,935
OR APPLICATION NUMBER: 60/239,935

FILING DATE: 2000-10-13
APPLICATION NUMBER: 60/239,937
FILING DATE: 2000-10-13
APPLICATION NUMBER: 60/241,787

FILING DATE: 2000-10-20 APPLICATION NUMBER: 60/246,474

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RESULT 14
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Best Local S
Matches 46
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                          APPLICANT: Conjuchem, Inc.
APPLICANT: Bridon, Dominique
APPLICANT: Ezrin, Alan
APPLICANT: Milner, Peter
APPLICANT: Milner, Peter
APPLICANT: Holmes, Darren
TITLE OF INVENTION: PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
TITLE OF INVENTION: COMPONENTS
TITLE OF INVENTION: COMPONENTS
TITLE OF INVENTION: COMPONENTS
TITLE OF INVENTION: COMPONENTS
FILE REFERENCE: 2110
CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
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APPLICATION NUMBER: 60/232,397
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FILING DATE: 2000-09-08
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FILING DATE: 2000-09-14
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APPLICATION NUMBER: 60/232,399
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46; Conserv
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Pred. No. 1e-27;
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PRIOR PRIOR

OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,213
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,212
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,207
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,245
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,245
OR FILING DATE: 2000-11-17

PRIOR PRIOR PRIOR

OR FILING DATE: 2000-11-08
OR APPLICATION NUMBER: 60/246,532
OR FILING DATE: 2000-11-08
OR APPLICATION NUMBER: 60/249,216
OR FILING DATE: 2000-11-17
OR APPLICATION NUMBER: 60/249,210
OR FILING DATE: 2000-11-17
OR PILING DATE: 2000-08-22
OR APPLICATION NUMBER: 60/225,759
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/225,213
OR APPLICATION NUMBER: 60/225,213
OR APPLICATION NUMBER: 60/227,182

OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/235,836
OR FILING DATE: 2000-09-27
OR APPLICATION NUMBER: 60/230,438
OR FILING DATE: 2000-09-06
OR PPLICATION NUMBER: 60/215,135
OR FILING DATE: 2000-06-30
OR APPLICATION NUMBER: 60/225,266
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/249,218
OR APPLICATION NUMBER: 60/249,218
OR APPLICATION NUMBER: 60/249,218
OR APPLICATION NUMBER: 60/249,208

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FILE REFERENCE: 210

CURRENT APPLICATION NUMBER: US/09/657,276

CURRENT FILING DATE: 2000-09-07

PRIOR APPLICATION NUMBER: 60/134,406

PRIOR FILING DATE: 1999-05-17

PRIOR APPLICATION NUMBER: 60/153,406

PRIOR APPLICATION NUMBER: 60/153,406

PRIOR APPLICATION NUMBER: 60/159,783

PRIOR FILING DATE: 1999-09-10

PRIOR FILING DATE: 1999-10-18

NUMBER OF SEQ ID NOS: 1617

SOFTWARE: Patentin Ver. 2.1

SEQ ID NO 1095

LENGTH: 46

TYPE: PAT

ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Description of Artificial Sequence: Synthetic
OTHER INFORMATION: Peptide

US-09-657-276-1095
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PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1093
LENGTH: 47
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; OTHER INFORMATION: Description of Artificial Sequence: Synthetic
; OTHER INFORMATION: Peptide
US-09-657-276-1093
Search completed: December 4, 2002, 15:48:01 Job time : 142 secs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Milner, Peter
APPLICANT: Holmes, Darren
APPLICANT: Thibaudeau, Karen
TITLE OF INVENTION: PROFECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
TITLE OF INVENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
TITLE OF INVENTION: COMPONENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 60/134,406
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/153,406
PRIOR FILING DATE: 1999-09-10
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Local Similarity 93.9%;
hes 46; Conservative
                                                                                                                                        Local Similarity 93.9%; es 46; Conservativo
                                                                         Bridon, Dominique
Ezrin, Alan
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Pred. No. 1.3e-25;
0; Mismatches 1;
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Pred. No. 2.6e-24;
0; Mismatches 0;
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3: /cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*

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6: /cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*

7: /cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*
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  YLYQWLGAPVPYPDPLXPRR.....DELADHIGFQEAYRRFYGPV
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                         US-09-724-676-93283
US-09-724-676-93283
US-09-724-676-93284
US-09-724-676-93285
US-09-724-676-93286
US-09-724-676-93288
US-09-724-676-93291
US-09-724-676-93291
US-09-724-676-93293
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PCT-US02-32727-1178:
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US-09-724-676-90318
US-09-724-676A-90318
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Sequence 93244,	Sequence 93243,	Sequence 93242,	Sequence 93301,	Sequence 93299,	Sequence 93298,	Sequence 93297,	Sequence 93296,	Sequence 93295,	Sequence 93294,	Sequence 93293,	Sequence 93292,	Sequence 93291,	Sequence 93290,	Sequence 93288,	Sequence 93287,	Sequence 93286,	Sequence 93285,	Sequence 93284,
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US-09-724-676-90318
; Sequence 90318, Application US/09724676
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative spl
; FILE REFERENCE: 129181.4 Compugen
; CURRENT APPLICATION NUMBER: US/09/724,676
; CURRENT FILING DATE: 2000-11-28
; NUMBER OF SEQ ID NOS: 97222
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 90318
; LENGTH: 58
; TYPE: PAT
; ORGANISM: Homo sapiens
US-09-724-676-90318
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US-10-283-656-1
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1
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GENERAL INFORMATION:
APPLICANT: EXEMA, George Mbella
APPLICANT: MAYS, Robert W.
APPLICANT: BRUNDEN, Kurt R.
TITLE OF INVENTION: Methods for Using Osteocalcin
                Query Match
Best Local 9
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Best Local Similarity
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CURRENT APPLICATION NUMBER: US/10/283,656
CURRENT FILING DATE: 2002-10-29
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TYPE: PRT
ORGANISM: Homo sapiens
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                Local Similarity
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                Score 224; DB 5
Pred. No. 2e-22;
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Pred. No. 1.2e-27;
0; Mismatches 3
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                                  DB 5; Length 58,
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US-09-802-154-21
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
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LENGTH: 58
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GENERAL INFORMATION:
APPLICANT: Itch, Nobuyuki
APPLICANT: Kavanaugh, W. Michael
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Best Local
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Best Local
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CURRENT APPLICATION NUMBER: US/09/802,154
CURRENT FILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 46
SOFTMARE: FRACESCO
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TITLE OF INVENTION: HUMAN FGF-23 GENE AND GENE EXPRESSION
TITLE OF INVENTION: PRODUCTS
                APPLICANT: The Minister of National Defence, Government of Canada
APPLICANT: Fulton, R E
APPLICANT: Alvi, Azhar E
APPLICANT: Nagata, Leslie
APPLICANT: Nagata, Leslie
APPLICANT: Nagata, Leslie
TITLE OF INVENTION: Cloning, Expression, Sequencing, and Functional Enhancement of M
TITLE OF INVENTION: Screy Antibody Against Venzuelan Equine Encephalitis Virus (Vee)
FILE REFERENCE: NEL-0007
CURRENT APPLICATION NUMBER: US/10/096,246
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92.3%;
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Pred. No.
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Pred. No. 2e-22;
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; LENGTH: 257
; TYPB: PRT
; ORGANISM: Mouse hybridoma cell line 1A4A1
US-10-096-246-2
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; ORGANISM: Homo sapiens US-09-724-676-93282
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LENGTH: 92
TYPE: PRT
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                                      NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 93282
LENGTH: 194
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Best Local Similarity
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APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
FILE REFERENCE: 129181.5 Compugen
FILE REFERENCE: 129181.5 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acne FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
                                                                                                     CURRENT APPLICATION NUMBER: US/O CURRENT FILING DATE: 2000-11-28
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Barth, Brenda
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Bhatia, Ajay
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Jones, Robert
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Pred. No. 1.5;
5; Mismatches
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US-09-724-676-93285, Application US/09724676
; Sequence 93285, Application US/09724676
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative splicing
; FILE REFERENCE: 129181.4 Compugen
; CURRENT APPLICATION NUMBER: US/09/724,676
; CURRENT FILING DATE: 2000-11-28
; NUMBER OF SEQ ID NOS: 97222
; SOFTWARE: PatentIn version 3.2
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US-09-724-676-93284
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US-09-724-676-93283
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US-09-724-676-93284
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Best Local Similarity 36.6
Matches 15; Conservative
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
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TYPE: PRT
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Local Similarity 36.68;
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NUMBER OF SED ID NOS: 97222

SOFTWARE: PatentIn version 3.2

LENGTH: 194

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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-724-676-93285
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US-09-724-676-93287
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US-09-724-676-93288
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US-09-724-676-93287
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SOFTWARE: PatentIn version 3.2
SEQ ID NO 93287
                                                    Sequence 93288, Appl
GENERAL INFORMATION
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APPLICANT: Compugen LTD TITLE OF INVENTION: Variants of alternative splicing FILE REFERENCE: 129181.4 Compugen
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CURRENT FILING DATE: 2000-11-28
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TITLE OF INVENTION: Variants of alternative
FILE REFERENCE: 129181.4 Compugen
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TYPE: PRT
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Pred. No. 3.7;
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Sequence 93290, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 93290
LENGTH: 194
TYPE: PRT
ORGANISM: Homo sapiens
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 93291
LENGTH: 194
TYPE: PAT
ORGANISM: Homo sapiens
US-09-724-676-93291
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US-09-724-676-93291
Sequence 93291, Application US/09724676
GENERAL INFORMATION:
Search completed: December 4, 2002, 15:48:41 Job time: 13 secs
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CURRENT FILING DATE: 2000-11-28
NUMBER OF SEO ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEO ID NO 93288
LENGTH: 194
TYPE: PRT
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Best Local Similarity 36.6%;
Matches 15; Conservative
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Best Local Similarity 36.6%;
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247.926 Million cell updates/sec
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Compugen Ltd.
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Perfect score: Title: US-09-462-931-2-COPY 272

Sequence: YLYQWLGAPVPYPDPLXPRR..DELADHIGFQEAYRRFYGPV 49

Scoring table: BLOSUM62 Gapop 10.0 , Gapext 0.5

283224 segs,

96134422 residues

Searched:

Total number of hits satisfying chosen parameters: 283224

Minimum Maximum DB seq length: 0 length: 2000000000

Post-processing: Minimum Match 90

Maximum Match 100% Listing first 45 summaries

Database PIR_73:* pir1:*
pir2:*

and is score No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed, serived by analysis of the total score distribution.

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C69009	D86483	T14316	S73915	S55617	A43674	T01203	G81109	VCLJH2	H85135	T01187	T06624	AG0371	AH0776	C83210	S65969
conserved hypothet	protein F5J5.19 [i	rig-1 protein - mo	virulence-associat	hypothetical prote	US2 protein - huma	ribosomal protein	ribonuclease II fa	env polyprotein -	hypothetical prote	ribosomal protein	hypothetical prote	probable acetyltra	methionine-tRNA li	methionyl-tRNA syn	yycE protein - Bac

ALIGNMENTS

ESULT

osteocalcin precursor [validated] - human

N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing prote

08-Dec-2000

C;Species: Homo sapiens (man)
C;Date: 31-Dec-1980 #sequence_revision 07-Apr-1994 #text_change
C;Accession: S12652; C25471; A03301; S08694
R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.; Barr, P.J.
Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid sequences of human and A;Reference number: S12652; MUID:90245603; PMID:2336375 A; Accession: S12652 bovine bone Gla prote

A; Molecule type: mRNA A; Residues: 1-100 <KIE>

A;Cross-references: EMBL:X53698; NID:g36092; PIDN:CAA37736.1; PID:g36093 R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney,

R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney, J.M. EMBO J. 5, 1885-1890, 1986
A;Title: Isolation of the human gene for bone gla protein utilizing mouse and A;Reference number: A91045; MUID:87004555; PMID:3019668
A;Accession: C25471

rat cDN

A;Molecule type: DNA A;Residues: 1-32,35-100 <CEL>

A;Cross-references: EMBL:X04143; NID:g29449; PIDN:CAA27763.1; PID:g29450 R;Poser, J.W.; Esch, F.S.; Ling, N.C.; Price, P.A. J. Biol. Chem. 255, 8685-8691, 1980 A;Title: Isolation and sequence of the vitamin K-dependent protein from human bone. A;Reference number: A03301; MUID:81006914; PMID:6967872 A;Accession: A03301 ਖ

A; Molecule type: protein A; Residues: 52-100 <POS> A; Residues: 52-100 <POS> A; Residues: 52-100 <APOS Anal. Biochem. 199, 93-97, 1991 M.K.; Price, P.A.

A; Title: Direct identification of gamma-carboxyglutamic acid in the sequencing A; Reference number: A44566; MUID:92222128; PMID:1807167 A; Contents: annotation of vit

reference A9104

C;Comment: This protein, isolated from bone, binds strongly to apatite. C;Comment: Alternative splicing may produce the sequence presented in r C;Comment: Glu-68 is gamma-carboxylated in 9-50% of the molecules.

C; Genetics A;Gene: GDB:BGLAP

A;Cross-references: GDB:118760; OMIM:112260 A;Map position: 1q25-1q31 A;Introns: 22/1; 35/1; 58/2

C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding; carboxyglutamic acid; extracellular matrix
F;1-51/Domain: signal sequence #status predicted <5/30>
F;52-100/Product: osteocalcin #status experimental <MAT>
F;60/Modified site: 4-hydroxyproline (Pro) #status absent
F;68/Modified site: gamma-carboxyglutamic acid (Glu) (partial) #status experimental
F;72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
F;72,75/Modified site: gamma-sarboxyglutamic acid (Glu) #status experimental (partial) #status experimental

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osteocalcin - crab-eating macaque
N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing protein
C;Species: Macaca fascicularis (crab-eating macaque)
C;Date: 27-Nov-1985 #sequence_revision 27-Nov-1985 #text_change 06-Sep-1996
C;Accession: A0302
R;Hauschka, P.V.; Carr, S.A.; Biemann, K.
Biochemistry 21, 638-642, 1982
A;Title: Primary structure of monkey osteocalcin.
A;Reference number: A03302; MUID:82182842; PMID:6978733
A;Accession: A03302
A;Molecule type: protein
A;Residues: 1-49 <HAU>
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;97,Modified site: 4-hydroxyproline (Pro) #status experimental
F;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
F;23-29/Disulfide bonds: #status experimental
                                                                                                                                                           A;Cross-references: EMBL:X53699; NID:g719; PIDN:CAA37737.1; PID:g720
A;Note: alternative splicing may produce a sequence lacking residues 33.
R;Price, P.A.; Poser, J.W.; Raman, N.
Proc. Natl, Acad. Sci. U.S.A. 73, 3374-3375, 1976
A;Title: Primary structure of the gamma-carboxyglutamic acid-containing A;Reference number: A03303; MUID:77036749; PMID:1068450
A;Accession: A03303
A;Molecule type: protein
A;Residues: 52-100 <PRI>C;Comment: This protein, isolated from bone, binds strongly to apatite.
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;1-51/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: S12652;
A; Accession: S12653
A; Molecule type: mRNA
A; Residues: 1-100 <KIE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid sequences of human A;Reference number: S12652; MUID:90245603; PMID:2336375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   osteocalcin precursor - bovine
N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing
C;Species: Bos primigenius taurus (cattle)
C;Date: 24-Apr-1944 #sequence_revision 07-Apr-1994 #text_change 22-Jun-1999
C;Accession: S12653; A03303; S08693
R;Kiefer, M.C.; Saphire, A.C. S.; Bauer, D.M.; Barr, P.J.
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                                                                    F;68,72,75/Modified site
F;74-80/Disulfide bonds:
                                                                                          60/Modified site: 4-hydroxyproline (Pro) #status experimental 68,72,75/Modified site: gamma-carboxyglutamic acid (Glu) #sta
                                                                                                                                        1-51/Domain: signal sequence #status predicted <SIG>52-100/Product: osteocalcin #status experimental <MAT>
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93.9%;
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89.8%;
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85
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Pred.
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Pred. No. 4.1e-27;
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244;
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No. 1.1e-27;
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DB 1;
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A;Molecule type: protein
A;Residues: 1-49 <SHIY
A;Residues: 1-50 < SHIY
C;Superfamily: osteocalcin
C;Reywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;9/Modified site: 4-hydroxyproline (Pro) #status experimental
F;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status exper
F;23-29/Disulfide bonds: #status experimental
R;Pan, L.C.; Price, P.A.

Proc. Natl. Acad. Sci. U.S.A. 82, 6109-6113, 1985
A;Title: The propeptide of rat bone gamma-carboxyglutamic A;Reference number: A25167; MUID:85298305; PMID:3875856
A;Accession: A25167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 22-Jun-1999 C;Accession: A31856; A31419; A32344; A25167; A25471 R;Yoon, K.; Ruttedge, S.J.C.; Buenaga, R.F.; Rodan, G.A. Biochemistry 27, 8521-8526, 1988 Biochemistry 27, 8521-8526, 1988 A;Title: Characterization of the rat osteocalcin gene: stimulation of promoter activi A;Reference number: A31856; MUID:89118266; PMID:3265336 A;Accession: A31856
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C; Date: 25-Feb-1985
C; Accession: A03304
                                                                                                                                                                                                                                                   A;Cross-references: GB:M25490; NID:g576530; PIDN:AAA53280.1; PID:g576531 R;Lian, J.; Stewart, C.; Puchacz, E.; Mackowiak, S.; Shalhoub, V.; Collart, Proc. Natl. Acad. Sci. U.S.A. 86, 1143-1147, 1989 A;Title: Structure of the rat osteocalcin gene and regulation of vitamin D-A;Reference number: A32324; MUID:89145200; PMID:2784002
                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Title: Molecular structure of the rat bone Gla protein A;Reference number: A31419; MUID:89251082; PMID:2785907 A;Accession: A31419
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    osteocalcin precursor - rat
N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing
C;Species: Rattus norvegicus (Norway rat)
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A; Residues: 1-99 <THE>
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A; Residues: 1-99 <YOO>
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J. Biochem. 96, 405-411, 1984
                                                                                                                                       A; Cross-references: GB: J04500; NID: g205863; PIDN: AAA41764.1;
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ilvestris catus (domestic cat)
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77.6%;
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Pred. No. 7.2e-22;
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acid

protein shares

homolog

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A;Mclecule type: mRNA
A;Residues: 1-99 <CEL>
A;Cross-references: GB:X04141; NID:g55826; PIDN:CAA27761.1; PID:g55827
A;Cross-references: GB:X04141; NID:g55826; PIDN:CAA27761.1; PID:g55827
A;Cross-references: GB:X04141; NID:g55826; PIDN:CAA27761.1; PID:g55827
C;Genetics:
A;Introns: 22/1; 33/1; 56/2
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;1-21/Domain: signal sequence #status predicted <PRO>
F;2-49/Domain: propeptide #status predicted <PRO>
F;50-99/Product: osteocalcin #status predicted <CCN>
F;58/Modified site: 4-hydroxyproline (PrO) #status predicted
F;66,70,73/Modified site: gamma-carboxyglutamic acid (Glu) #status predicted
F;72-78/Disulfide bonds: #status predicted
osteocalcin - emu
C:Species: Dromaius novaehollandiae (emu)
C;Date: 01-Dec-1989 #sequence_revision 01-Dec-1989 #text_
C;Accession: $02208
C;Accession: $02208
R;Huq, N.L.; Tseng, A.; Chapman, G.E.
Biochem. Int. 15, 271-277, 1987
A;Title: The amino acid sequence of emu osteocalcin: gas A;Reference number: $02208; MUID:88134266; PMID:3501719
A;Accession: $02208
A;Molecule type: protein
A;Residues: 1-48 <HUQ>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Biochem. Soc. Trans. 19, 373s, 1991
A;Title: Primary aminoacid sequence of rabbit osteocalcin.
A;Reference number: A61280; MUID:92175242; PMID:1794506
A;Rocession: A61280
A;Molecule type: protein
A;Residues: 1-49 <VIR>
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline; pyroglutamic C;Keywords: bone; calcium binding; carboxyjlc acid (Gln) #status experimental
F;1/Modified site: 4-hydroxyproline (Pro) #status experimental
F;1/1,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
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A;Title: Isolation of the human gene for bone gla protein utilizing mouse A;Reference number: A91045; MUID:87004555; PMID:3019668
A;Accession: A25471
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Pred. No. 2.5e
3; Mismatches
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A;Molecule type: DNA
A;Residues: 1-95 <CEL>
A;Residues: C.; Hogue, D.A.; Karsenty, G.
R;Desbois, C.; Hogue, D.A.; Karsenty, G.
J. Biol. Chem. 269, 1183-1190, 1994
A;Title: The mouse osteocalcin gene cluster contains three
A;Reference number: A49871; MUID:94117426; PMID:8288580
A;Accession: A49871
A;Status: preliminary; translated from GB/EMBL/DDBJ
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C;Keywords: bone; calcium binding; carboxyglutamic acid
E;49-97/Product: osteocalcin #status experimental <MAT>
E;65,69,72/Modified site: gamma-carboxyglutamic acid (Glu) #status
E;71-77/Disulfide bonds: #status predicted
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J. Biol. Chem. 256, 9944-9950, 1981

A;Title: Gas chromatographic mass spectrometric sequence A;Reference number: A03305; MUID:82007831; PMID:6792200
                  A; Molecule type: DNA
A; Residues: 1-95 < RES>
                                                                                                                                                                                                                                                 R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, EMBO J. 5, 1885-1890, 1986
A;Title: Isolation of the human gene for bone gla protein (A;Reference number: A91045; MUID:87004555; PMID:3019668
                                                                                                                                                                                                                                                                                                                                         C;Species: Mus musculus (house mouse)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 20-Aug-1999
C;Accession: B25471; A49871; I61189
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A; Molecule type: protein
A; Residues: 49-63,'1',65-77,'N',79-82,'EL',85-90,'Q',91-97
C; Comment: The gamma-carboxyglutamic acid residues formed l
C; Superfamily: osteocalcin
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A; Residues: 1-97 <NEU>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteocalcin precursor - chicken N;Alternate names: BGP; bone Gla
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  GB:L24429;
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74.48;
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86.5%;
NID: g455452;
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Pred. No. 6.1e-15;
3; Mismatches 5
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No. 6.7e-17;
  PIDN: AAA39854.1;
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  PID: g455453
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A;Introns: 22/1
C;Superfamily:
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A;Molecule type: DNA
A;Residues: 1-3,'IF',6-10,'T',12-95 <RE2>
A;Cross references: GB:L24431; NID:g455456; PIDN:AAA39856.1; PID:g455457
C;Genetics:
                                                                                                                                                                                                                                                             R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M.; Lian, J.B.; Stein, G. Endocrinology 133, 3050-3053, 1993
A;Title: Multiple copies of the bone-specific osteocalcin gene in mouse and rat. A;Reference number: 153275; MUID:94062692; PMID:8243336
A;Accession: 167413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M. Endocrinology 133, 3050-3053, 1993
A;Title: Multiple copies of the bone-specific osteocalcin A;Reference number: I53275; MUID:94062692; PMID:8243336
A;Accession: I53275
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                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-95 < RES>
                                                                                                                                                                                                                                                                                                                                                   C;Species: Mus sp. (mouse)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 20-Aug-1999
C;Accession: I67413
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A; Residues: 1-95 < RES>
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C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change 20-Aug-1999
C;Accession: I53275
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 LRRYLGASVPSPDPLEPTRELCELDPACDELSNQYGLKTAYRRIYG
                                   LYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYG 47
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58.78;
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5; Mismatches
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No. 9
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.7e-12;
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                                          osteocalcin - bluegill N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing C;Species: Lepomis macrochirus (bluegill) C;Date: 31-Dec-1993 #sequence_revision 06-Sep-1996 #text_change 06-Sep-1996
C; Accession: A42794
R; Nishimoto, S.K.; Araki, N.;
J. Biol. Chem. 267, 11600-116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Introns: 22/:
C; Superfamily:
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A; Residues: 1-95 < RE2>
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Matches
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 Robinson,
05, 1992
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C;Species: Mus musculus (house mouse)
C;Date: 02-Unl-1996 #sequence_revision 02-Jul-1996 #text_cl
C;Accession: I61188; I49073
R;Desbols, C.; Hogue, D.A.; Karsenty, G.
J, Biol. Chem. 269, 1183-1190, 1994
A;Title: The mouse osteocalcing 1994
A;Title: The mouse osteocalcing 1994
A;Accession: I61188
                                                                                                                                                                            C;Superfamily: osteocalcin C;Keywords: bone; calcium binding; carboxyglutamic acid (Glu) #status experimental F;13,17,20/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental F;19-25/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                 R:Price, P.A.; Otsuka, A.S.; Poser, J.W. in Calcium-binding Proteins and Calcium Function, A;Title: Comparison of gamma-carboxyglutamic acid A;Reference number: A03306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing C;Species: Xiphias gladius (swordfish)
C;Date: 30-Apr-1979 #sequence_revision 27-Nov-1985 #text_change 06-Sep-1996
                                                                                                                                                                                                                                                                           A; Note: residues 14, 24, and 37 were not positively
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:L24430; NID:g455454; PIDN:AAA39855.1; A;Accession: I49073
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PLQLESLREVCELNVSCDEMADTAGIVAAYIAYYGPI
                                        PDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
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                                                                                        Score 91; DB
Pred. No. 4.1e
3; Mismatches
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Pred. No. 9.7e-1
7; Mismatches
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d-containing
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F.D.; Waite,

prote

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A; Note:
C; Superf
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R;Blattner, F.R.; Plunkett III, G.; Bloch, C.A.; Perna, N.T.; B.A.; Rose, D.J.; Mau, B.; Shao, Y.
Science 277, 1453-1462, 1997

A;Title: The complete genome sequence of Escherichia coli K-12.
A;Reference number: A64720; MUID:97426617; PMID:9278503

A;Accession: A64979
                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: DNA
A;Residues: 2-15, VV, 17-149, 'L', 151-435, 'A', 437-564 <BAR>
A;Residues: 2-15, VV, 17-149, 'L', 151-435, 'A', 437-564 <BAR>
A;Residues: 2-15, VV, 17-149, 'L', 151-435, 'A', 437-564 <BAR>
A;Residues: 2-15, VV, 17-149, 'L', 151-435, 'BB:J01650
A;Note: most of this sequence was confirmed by protein sequencing
R;Dardel, F.; Panvert, M.; Fayat, G.
Mol. Gen. Genet. 223, 121-133, 1990
A;Title: Transcription and regulation of expression of the Escherichia coli methionyl-tFA;Reference number: S11948; MUID:91080852; PMID:2259334
A;Accession: S11949
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N;Alternate names: methionyl-tRNA synthetase  
C;Species: Escherichia coli  
C;Date: 13-Jun-1983 #sequence_revision 30-Jun-1992 #text_change 03-Jun-2002  
C;Accession: S14427; A91797; A91123; S11949; A64979; A01187; A35821
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SYECMT
A; Molecule type: DNA
A; Residues: 1-677 < ERLAT>
A; Cross-references: GB: AE000300; GB
A; Experimental source: strain K-12,
R; Zelwer, C.; Risler, J.L.; Brunie,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:K02671; NID:g146828; PIDN:AAA24161.1; PID:g1 R;Barker, D.G.; Ebel, J.P.; Jakes, R.; Bruton, C.J. Eur. J. Blochem. 127, 449-457, 1982
A;Title: Methionyl-tRNA synthetase from E. coli: primary structure A;Reference number: A91123; MUID:83079258; PMID:6756915
A;Accession: A91123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:X55791; NID:g42015; PIDN:CAA39315.1; R;Dardel, F.; Fayat, G.; Blanquet, S. J. Bacteriol. 160, 1115-1122, 1984
A;Title: Molecular cloning and primary structure of the Escher A;Reference number: A91797; MUID:85054627; PMID:6094501
A;Accession: A91797
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A; Residues: 1-51;661-677 <DAR>
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A; Residues: 2-677 < DAR2>
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A; Residues: 1-677 < DAR1>
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A; Accession: S14427
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                                                                                                                                                         A;Status: nucleic
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                                                                                                                                                   acid sequence not shown;
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                                                                                                                                                                                                                                                                                               G.; Bloch, C.A.; Perna, N.T.; Burland, V.; Riley, M.; Y.
   GB:U00096; NID:g1788425; PIDN:AAC75175.1; PID:g1788432.
12, substrain MG1655
ie, S.
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A;Pathway: protein biosynthesis
C;Superfamily: methionine-tRNA ligase
C;Keywords: aminoacyl-tRNA synthetase; ATP; homodimer; ligase; metalloprotein;
F;2-677/Product: methionine-tRNA ligase #status predicted <MAT>
F;62-66,137-157,335-341,434-438/Region: tRNA 3'-acceptor end binding
F;452-468/Region: anticodon recognition
F;16,22,53,336/Active site: Tyr, His, Asp, Lys #status predicted
F;146,149,159,162/Binding site: zinc (Cys) #status experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R.Fourmy, D.; Dardel, F.; Blanquet, S.
J. Mol. Biol. 231, 1078-1089, 1993
A;Title: Methionyl-tRNA synthetase zinc binding domain. Three-d
A;Reference number: A58691; MUID:93294859; PMID:8515466
A;Contents: annotation; conformation by (1)H-NMR
R;Brunie, S.; Zelwer, C.; Risler, J.L.
J. Mol. Biol. 216, 411-424, 1990
A;Title: Crystallographic study at 2.5 Angstroms resolution of
A;Reference number: A58692; MUID:91073404; PMID:2254937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Title: Crystal structure of Escherichia coli methionyl-tRNA synthetase at 2.5 A A;Reference number: A92880; MUID:82192427; PMID:7042987 A;Contents: annotation; X-ray crystallography, 2.5 angstroms R;Hountondji, C.; Schmitter, J.M.; Beauvallet, C.; Blanquet, S. Biochemistry 29, 8190-8198, 1990
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A; Contents: annotation; conformation by (1)H-NMR, residues 'GS', 139-164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R; Fourmy, D.; Dardel, F. submitted to the Brookhaven
                                                                                                                                                                                                                                                                                                                                                                                                                               A; Description: EC 6.1.1.10 [validated, MUID:83079258]; catalyzes the ligation of
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YFYVWLDAPIGY--
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Result No.	Score	Query Match		DB	ID	Description
1	46	93.9	49	14	AAR32937	17. 21. 24. Gla hu
N	46	93.9	49	18	AAW34266	Gla21-osteocalcin
ω	30	61.2	49	14	AAR32936	21, 24, Gla human
4	30	61.2	49	18	AAW34264	Glu17-osteocalcin
5	25	51.0	46	22	AAB91919	Bone Gla protein p
6	25	51.0	47	22	AAB91917	Bone Gla protein p
7	25	51.0	49	18	AAW34263	Glu17-osteocalcin
8	25	51.0	49	18	AAW34265	Gla21-osteocalcin
9	25	51.0	49	20	AAW99811	Human osteocalcin
10	25	51.0	51	12	AAR10146	Human osteocarcin

45	44	43	42	41	40	39	38	37	36	35	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
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AAU88447	AAU88438	AAW19897	AAU88442	AAU88451	AAE08623	AAY05366	AAY70693	AAM48056	AAE18828	AAU78634	AAU98372	ABB83453	AAO15409	AAB70172	AAU02089	AAG65668	AAY58430	AAW04605	AAW76097	AAO17841	AAU85975	AAP71282	AAW34268	AAE18389	AAB91920	AAR06631	AAU10688	AAW01681	AAR06630	AAR26407	AAR20043	AAU10687	AAR10147	AAW76094
Insulin/insulin-li	Insulin/insulin-li	Vector pUC119EHIS-	Insulin/insulin-li	Insulin/insulin-li	EHtag peptide. Sy		E. coli antibody d	sequence.	in th		Synthetic E tag pe	. Syntheti	tag - peptide t	tag. Syntheti	peptide.	used for	E tag peptide, SEQ	Osteocalcin 7-19 f		Peptide presentati	Modified osteocalc	Peptide from mamma	Gla21-osteocalcin	P peptide	Bone Gla protein p	Human osteocalcin	morp	Bone Gla protein.	Ω	lcin AA	Fusion protein for			Human osteocalcin

ALIGNMENTS

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31-JUL-1991; 91JP-0213251.	31-006-1991; 910F-0213231.		09-FEB-1993.		JP05032697-A.	January Carty Carl Jan Camary			Amming carpoyldingmine	OTHER		<pre>/note= "OTHER= gamma-carboxyglutamic acid"</pre>		Misc-difference 17	Key Location/Qualifiers		Synthetic.		Gamma-carboxyglutamic acid; OS.		17, 21, 24, Gla human osteocalsin peptide.	03-001-1993 (IIISC encry)		AAR32937;		AAR32937 standard; peptide; 49 AA.	LT 1 2937

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RESULT 2
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Best Local 9
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This sequence represents a human Gla21-osteocalcin peptide. This sequence is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which
                                                                                                                                     Antibody specific for Glul7-osteocalcin, diagnosis of bone disorders such as osteo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Glu17-osteocalcin; Gla21-osteocalcin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gla21-osteocalcin peptide
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic human osteo:calsin for standard in determn. of natosteo:calsin - prepd. by introducing gamma-carboxy:glutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1993-088665/11.
                                                                                          Claim 4; Page 18; 28pp; Japanese
                                                                                                                                                                                                           WPI; 1997-512875/47.
                                                                                                                                                                                                                                                        Kimura T,
                                                                                                                                                                                                                                                                                                                                                   27-FEB-1997;
10-APR-1996;
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                                                                                                                                                                                                                                                        Morimoto S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49 AA;
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96JP-0088608
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "gamma-carboxyglutamic
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Pred. No.
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                                                                                                                                 cin, or its fragment -
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RESULT 3
AAR32936
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Best Local Similarity
Watches 49; Conserv
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                                                                                                        The synthetic 21, 24, gamma-carboxyglutamic acid form of human osteocalcin (OS) was produced by introducing protected Gla. The substance may be produced in high yield and is useful as standard for the determination of human OS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 binds to {\tt Glu17\text{-}osteocalcin}, {\tt Gla21\text{-}osteocalcin} or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                  Synthetic human osteo:calsin for standard in determn.
                                                                                                                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                            21,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR32936 standard;
                                                                             Sequence
                                                                                                                                                           Claim 1; Page 2; 10pp; Japanese.
                                                                                                                                                                              as fluorenyl protected gp.
                                                                                                                                                                                       osteo:calsin - prepd. by introducing
                                                                                                                                                                                                                     WPI; 1993-088665/11.
                                                                                                                                                                                                                                                            31-JUL-1991;
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                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
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          18 PRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
18
                                               Local
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                                                                                                 also
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PRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
                                      l Similarity
32; Conserv
                                                                                                                                                                                                                                         TELJIN
                                                                                                 AAR32937
                                                                             49 AA;
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                                      ilarity 100.0%;
Conservative
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Pred. No.
                                                Score 30;
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                                                                                                                                                                                                                                                                                                                                          gamma-carboxyglutamic acid"
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49
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1.2e-42;
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RESULT 4

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RESULT 5
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Best Local
                                               Protection; endogenous therapeutic peptide; peptidase; conjugation; blood component; modification; succinimidyl; maleimido group; amino hydroxyl; thiol; hormone; growth factor; neurotransmitter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This sequence represents a human Glul7-osteocalcin peptide. This sequence is recognised by the antibody of the invention. The antibody of the invention is an anti-Glul7-osteocalcin antibody or its fragment, which binds to Glul7-osteocalcin, Gla21-osteocalcin or their fragments. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
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Homo sapiens
                                                                                                                                                        Bone Gla protein peptide SEQ ID
                                                                                                                                                                                                               22-JUN-2001
                                                                                                                                                                                                                                                                    AAB91919;
                                                                                                                                                                                                                                                                                                                      AAB91919 standard;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kimura T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27-FEB-1997;
10-APR-1996;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18 PRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRRXYCXLNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "gamma-carboxyglutamic acid"
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                                                                                                                                                                                                                                                                                                                         46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 30; DB; Pred. No. 2.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₹
                                                                                                                                                           NO:1095.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 18;
2.8e-2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 6
AAB91917
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a reactive group (II) (e.g. succinimidy) and maleimido groups) attached to a less therapeutically active amino acid region (IV), which covalently bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptides e.g. hormones, growth (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to albumin prevents or reduces the action of peptidases to increase length of activity (half life) and specificity as bonding to large molecules decreases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local :
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10-SEP-1999;
15-OCT-1999;
                                                                                                                                                                              Protection; endogenous therapeutic peptide; peptidase; conjugation; blood component; modification; succinimidyl; maleimido group; amino hydroxyl; thiol; hormone; growth factor; neurotransmitter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    intracellular uptake and interference with physiological p AAB90829 to AAB92441 represent peptides which can be used exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI;
                                                                                                   Homo sapiens.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                   AAB91917;
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23-NOV-2000
                                                 WO200069900-A2
                                                                                                                                                                                                                                                                                          Bone Gla protein peptide
                                                                                                                                                                                                                                                                                                                                            22-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB91917 standard; Peptide; 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Disclosure; Page 553; 733pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-MAY-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25 LNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LNPDCDELADHIGFQEAYRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001-112059/12.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ezrin AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                            (first entry)
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99US-0153406.
99US-0159783.
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100.0%;
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                                                                                                                                                                                                                                                                                          SEQ ID NO:1093.
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Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 22; I
7.1e-20;
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RESULT 7
AAW34263
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Comprising a therapeutically active amino acid region (III) and a
creactive group (II) (e.g. succinimidyl and maleimido groups) attached to
Ca less therapeutically active amino acid region (IV), which covalently
Cbonds with amino/hydroxyl/thiol groups on blood components to form a
ce peptidase stabilised therapeutic peptide composed of 3-50 amino acids.
CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth
cf factors and neurotransmitters, to protect them from peptidase activity
ci n vivo for the treatment of various disorders. Endogenous therapeutic
cc peptides are not suitable as drug candidates as they require frequent
cc administration due to rapid degradation by peptidases in the body.
CC Modifying and attaching therapeutic peptides to albumin prevents or
cc reduces the action of peptidases to increase length of activity (half
clife) and specificity as bonding to large molecules decreases
cc intracellular uptake and interference with physiological processes.
CC AABB0829 to AAB92441 represent peptides which can be used in the
cv
                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                   Matches
                                                     WO9738309-A1
                                                                                                                      Homo sapiens
                                                                                                                                                      Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                             Glu17-osteocalcin peptide #1
                                                                                                                                                                                                                                               AAW34263 standard; peptide; 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 552-553; 733pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Modifying and attaching therapeutic peptides peptidase degradation, useful for increasing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2001-112059/12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-MAY-1999;
10-SEP-1999;
          10-APR-1997;
                                                                                       Modified-site
                                                                                                                                             osteoporosis;
                                                                                                                                                                                                    23-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                               Sequence
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                                16-OCT-1997.
                                                                                                                                                                                                                                                                                                                             25
                                                                                                                                                                                                                                                                                                       23 LNPDCDELADHIGFQEAYRFYGPV 47
                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                                                                                                                                                                                                                    LNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DΡ,
                                                                                                                                                                                                                                                                                                                                                                                              47 AA;
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                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                  (first entry)
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99US-0153406.
99US-0159783.
          97WO-JP01246
                                                                                      Location/Qualifiers 21
                                                                                                                                                                                                                                                                                                                                                            51.0%;
                                                                          "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Milner
                                                                                                                                                                                                                                                                                                                                                  0;
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PG,
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                                                                                                                                                                                                                                                                                                                                                   Mismatches
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7.3e-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     to albumin prevents length of in vivo activity
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                                                                                                                                                                                                                                                                                                                                                                      Length 47;
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AAW34265
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Best Local
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         Claim 4; Page 17;
                                                                                                                                                                                                                                                                    Key
Modified-site
                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                            osteoporosis;
                                                                                    Kimura T,
                                                                                                                                 27-FEB-1997;
10-APR-1996;
                                                                                                                                                                  10-APR-1997;
                                                                                                                                                                                                             WO9738309-A1
                                                                                                                                                                                                                                               Modified-site
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                                                                                                                                                                                        16-OCT-1997
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This sequence represents a human Glu17-osteocalcin peptide. This sequence is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Glu21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such as
                        Antibody specific for {\tt Glul7}\mbox{-}{\tt osteo} calcin, or its fragment - diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                            Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                       Gla21-osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antibody specific for Glul7-osteocalcin, or its fragment - diagnosis of bone disorders such as osteoporosis
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10-APR-1996;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 1997-512875/47.
                                                                                                                          (EISA ) EISAI CO LTD.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25 LNPDCDELADHIGFQEAYRRFYGPV 49
                                                                  1997-512875/47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity
25; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Morimoto S,
                                                                                              Morimoto S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49 AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                               human.
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96JP-0088608
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96JP-0088608.
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28pp; Japanese
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                                                                                                                                                                                                                                                                                                            "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                               "gamma-carboxyglutamic acid"
                                                                                               Sakakibara
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Pred. No.
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    is recognised by the antibody of the invention. The antibody of the invention is an anti-Glul7-osteocalcin antibody or its fragment, the binds to Glul7-osteocalcin, Gla21-osteocalcin or their fragment, antibody can be used for the diagnosis of bone related disorders, osteoporosis.
       An assay has been developed for the detection of gamma-carboxylated thuman osteocalcin found in urine, where the glutamic acid residues at positions 17, 21 and 24 are gamma-carboxylated. The assay is used to measure the rate of bone turnover (formation and/or resorption) and/or for investigating metabolic bone disorders in individuals. Especially
                                                                                  Human osteocalcin peptide fragments - useful metabolic bone turnover rates and disorders
                                                                                                                         WPI;
                                                                                                                                                                                                          (KAEK/)
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 mentioned,
                                                                 Claim 1; Fig
                                                                                                               N-PSDB;
                                                                                                                                           Vaeaenaenen
                                                                                                                                                    Hellman
                                                                                                                                                                                                                                       15-AUG-1997;
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DB; AAX19767.
                                                                                                                                                                                                                                                                                                                                                                                         sapiens
                                                                                                                                                                                                                                                                                                                                                                                                           turnover;
                                                                                                                                                                                                                                                                                                                                                                                                                                      osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                          osteocalcin; urine; gamma-carboxylated; urnover; puberty; menopause; detection.
                                                                                                                                                    ۲,
                                                                                                                                                                       VAEAENAENEN H
                                                                                                                                                                                                                     HELLMAN J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                PETTERSSON K.
                                                                                                                                                                                         LOEVGREN T
                                                                                                                                                                                                  KARP
                                                                                                                                                                                                          KAEKOENEN S.
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                                                                1A; 49pp;
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assays
                                                                                                                                                                                                                                      97FI-0003371
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24
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21
                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protein;
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can detect differences between
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                                                                 English.
                                                                                                                                                                                                                                                                                                                                  "possibly
                                                                                                                                                                                                                                                                                                                "possibly gamma-carboxylated"
                                                                                                                                                                                                                                                                                                                                                   "possibly
                                                                                                                                                   Karp M,
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                                                                                                                                                   Loevgren
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7.5e-20;
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                                                                                            for
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                                                                                                                                                                                                                                                                                                                                                                                                                     bone disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 49;
                                                                                                                                                   Pettersson
                                                                                           detecting
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adults and children
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                   and/or
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RESULT 10
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Matches
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                               numan Processing Profession (depending on vitamin OC is a calcium bonded protein (depending on vitamin bone. It is thought to be a promoting factor during formation and may be used to treat diseases due to dy
                                                                                 A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.Coli HBIOI was transformed with this plasmid, ar made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained human precursor was further treated with carboxy peptidase to prepar
                                                                                                                                                                                                                     WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 going through puberty, pre- and post-menopausal women and children having high bone turnover. The assay allows more sensitive detection human osteocalcin (hOC) in urine than in serum. Significant increases hOC (40-48%) were detected in serum in menopause (normal increase is 30-50% above pre-menopausal women). Detection of urine hOC using the assay showed an increase as high as 75-79%. The present sequence represents a fragment of hOC.
                                                                                                                                                                                    purified
                                                                                                                                                                                                                                                               06-DEC-1988;
22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                     See also
                                                                                                                                         To K1 is attached H and to K51 is attached
                                                                                                                                                                Claim
                                                                                                                                                                                                                                                                                                22-AUG-1989;
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                                                                                                                                                                                                                                                                                                                                           JP02201294-A
                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                    calcium;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human osteocarcin
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                                                                                                                                                                                                                     1991-018865/03
                                                                                                                                                                                                                                                                                                                                                                                                                              sapiens
                                                                                                                                                                1;
                                                                                                                                                                                   osteocarcin (OC) precursor polypeptide - ied OC by digestion with carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    osteocarcin
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25; Conser
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89JP-0214239
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51..51
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K; bone formation; dysb
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                     AAQ10193-98
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Pred.
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3. 7.5e-20;
0;
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                                                                                                                                          요
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Sequence

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RESULT 1:
AAW76094
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Best Local :
                          Matches
                                                 Query Match
                                                                                                                                 This is the amino acid sequence of the human osteocalcin, deduced from the coding exons of the human hOC gene (see AAV46429). The invention pertains to a method for expressing endogenous genes in differentiated cells of a specific type. The method involves contacting pluripotent stem cells capable of maturing into differentiated cells with a nucleic acid comprising an exogenous gene linked to a regulatory element capable of controlling expression of the exogenous gene in the differentiated cells. A population of transduced stem cells capable of maturing into differentiated cells expressing the exogenous gene is produced. Preferably, the differentiated cells are in a tissue of interest, such as bone or cartilage, and the exogenous gene is operably linked to at least one osteocalcin regulatory element derived from the hOC promoter. The
                                                                                                                                                                                                                                                                                                                                          Expression of exogenous genes in differentiated cells transducing pluripotent stem cells capable of maturing differentiated cells with nucleic acid comprising exogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Promoter; tissue-specific gene expression; skeletal stem cell; bone; cartilage; osteocalcin; hOC gene;
                                                                           Sequence
                                                                                                                                                                                                                                                                                                            Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Quesenberry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9839427-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW76094 standard;
                                                                                                                        exogenous gene can encode a therapeutic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                              Frenkel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (UYMA-) UNIV MASSACHUSETTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-SEP-1998
                                                                                                             disease,
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                                       Local
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DB; AAV46429.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteocalcin
                                                                                                                                                                                                                                                                                                                                  for, e.g. treatment of osteoporosis
                            25;
                                                                                                                                                                                                                                                                                                                                                                                                                                          В,
                                                                                                  malignancy
                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                            especially osteoporosis, osteopenia, osteosarcoma,
                                                                            98
                                                                                                                                                                                                                                                                                                        Page 33-34; 63pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                           HOU
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteopenia;
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Stein
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in GS,
                                      51.0%;
100.0%;
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100.0%;
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3, Stein
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                                    Score 25;
Pred. No.
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Pred. No.
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ein JL;
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                          Mismatches
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                                                                                                  (all claimed).
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7.8e-20;
                                      1.,
                                      .4e-19;
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                                                                                                                                                                                                                                                                                                                                                        maturing into
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                                               Length 98
                                                                                                                        useful for treating
                                                                                                                                                                                                                                                                                                                                             exogenous
                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tissue;
                                                                                                                                                                                                                                                                                                                                             gene,
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RESULT 13
AAU10687
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AAR10147
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                                                                                                                                                                                              Matches
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                                                                                                                                                                                                                                                                                                   A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.coli HB101 was transformed with this plasmid, ar made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained human precursor was further treated with carboxy peptidase by purified human oc.

OC is a calcium boras.
                                                                                                                                                                                                                                                                     bone.
Human; single nucleotide polymorphism; SNP; BGLAP; chromosome 1q25-q31;
bone gamma carboxyglutamate protein; haplotyping; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                       Human osteocarcin (OC) precursor polypeptide - purified OC by digestion with carboxypeptidase
                               Reference sequence
                                                      14-FEB-2002
                                                                                                 AAU10687
                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                            See
                                                                                                                                                                                                                                                                             OC is a calcium bonded protein (depending on vitamin K) produced in bone. It is thought to be a promoting factor during the bone formation and may be used to treat diseases due to dysbolism of the
                                                                                                                                                                                                                                                                                                                                                                                                 Claim 5; Page 1; 11pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              06-DEC-1988;
22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-DEC-1990
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  calcium; vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human osteocarcin precursor
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-AUG-1989;
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                                                                                                                                                                                                                                                          also
                                                                                                                                                    osteocarcin precursor polypeptide; OC; carboxypeptidase um; vitamin K; bone formation; dysbolism.
                                                                                                                                                                                             25;
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89JP-0214239.
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                                for human
                                                                                                 Protein;
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                                                                                                 100
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                                                                                                                                                                                             0;
                                                                                                                                                                                                       Score 25;
Pred. No.
                                BGLAP protein.
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                                                                                                                                                                                              Mismatches
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                                                                                                                                                                                                        .4e-19;
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RESULT 14
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Best Local S
Matches 25
                                                                                                                                                                                                                                                                                                                                                      The present invention relates to novel single nucleotide polymorphisms (SNPs) in the human bone gamma carboxyglutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as probes and primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds are useful for (developing) treatment of diseases associated with BGLAP activity, such as osteoporosis. The present sequence represents a reference sequence for the BGLAP protein.
02-JAN-1992
                                             Cleavage-site
Protein
                                                                                                                                      gamma-carboxyglutamic acid;
                                                                                                                                                                            09-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 27; Fig 3; 53pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-APR-2000; 2000US-195840P
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                  EP463571-A.
                                                                                                                     Synthetic
                                                                                                                                                         Fusion
                                                                                                                                                                                                                AAR20043 standard; Protein; 97
                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New haplotypes of the human bone gamma useful to diagnose and treat diseases \epsilon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bentivegna SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18-OCT-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200177131-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteoporosis;
                                                                         Peptide
                                                                                          Peptide
                                                                                                    Кeу
                                                                                                                                                                                              AAR20043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                              76
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                                                                                                                                                                                                                                                                       LNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                              LNPDCDELADHIGFQEAYRRFYGPV 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2002-041288/05.
                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAS16363,
                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                        100
                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 osteopathic.
                                                                                                                                                         for
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chew A, Choi JY,
                                                                         /label= signal_peptide
23..44
                                                               /label=
                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAS16364.
                                                                                                                                                        expression of human osteocalcin.
                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                               51.0%; Score 25; DB
100.0%; Pred. No. 1..
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           English.
                                    osteocalcin
                                                               pro_peptide
                                                                                                                                       bone matrix;
                                                                                                                                                                                                                B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Koshy B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      associated with the gene s
                                                                                                                                                                                                                                                                                                  DB 23; I
1.4e-19;
hes 0;
                                                                                                                                       Gla protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rounds E,
                                                                                                                                                                                                                                                                                                                  Length 100;
                                                                                                                                                                                                                                                                                                   Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       n gene,
such as
                                                                                                                                                                                                                                                                                                 Gaps
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RESULT 15
AAR26407
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Best Local S
Matches 19
The sequences given in AAR26407-9 correspond to fragments of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence is a specific example of a claimed generic fusion protein comprising human osteocalcin. The pro-peptide is recognised by an enzyme capable of Glu to Gla conversion on human osteocalcin. The recombinant protein was obtained by culturing host cells transformed with a vector containing the synthetic coding sequence. The Glu residues could then be converted to Gla (i.e. gamma-carboxyglutamic acid) and the osteocalcin sequence cleaved from the propeptide. The mature protein is suitable for use in the immunoassays and as a drug for treatment of bone metabolism disorders. See also AAR20044-6.
                                                                   Antibody to human osteocalcin peptide of 1 to 19th radicals
                                                                                                                                                                                                                                                                                                                                 Osteocalcin
                            Disclosure; Fig 1; 8pp;
                                                                                                                                                                                                                       14-AUG-1992
                                                                                                                                                                                                                                                                            Synthetic
                                                                                                                                                                                                                                                                                                      Osteocalcin;
                                                                                                                                                                                                                                                                                                                                                                                                                   AAR26407 standard; peptide; 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 15; Fig 7; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Human osteocalcin prodn. - using fusion protein for expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; AAQ20210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eguchi H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-NOV-1990;
20-JUN-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-JUN-1991;
                                                       osteocalcin
                                                                                                             WPI; 1992-320370/39.
                                                                                                                                     (TEIJ ) TEIJIN LTD.
                                                                                                                                                                  27-DEC-1990;
                                                                                                                                                                                            27-DEC-1990;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      73 LNPDCDELADHIGFQEAYR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LNPDCDELADHIGFQEAYR 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1992-009183/02.
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19; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kamimura
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                                                                                                                                                                                                                                                                                                                                 AA 1-19,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                      antibody; bone; absorption; metabolism
                                                                                                                                                                                                                                                                                                                                                            (first entry)
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A
                                                                                                                                                                  90JP-0415242
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90JP-0159909
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38.8%;
                                                                                                                                                                                                                                                                                                                              peptide AbI.
                            Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      91
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 19;
Pred. No.

    obtd. by immunising with
of N-terminal of human

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t cells
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4.4e-13;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         human osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
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RESULT 16
AARO6630
ID AARO6630
XX AARO6
XX AARO6
XX O9-JA
XX OStec
XX O9-G
PN W0900
XX U9900
XX U9900
XX U9900
XX U9900
XX U990 23-AU
XX U7ELJ
XX U
  RESULT 17
AAW01681
ID AAW01
XX
AC AAW01
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                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 16
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                      A monoclonal antibody (MAb), OST-N2O, is raised to this N-terminal peptide (bases 1-20) of human osteocalcin. Additional MAbs (OST-C7 and OST-C15) are raised to two C-terminal osteocalcin peptide fragments (comprising bases 43-49 and 35-49 respectively). A sandwich immunoassay is then carried out and musculoskeletal disorders can be diagnosed. See also AAR06631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteocalcin. These fragments were used in the production of an antibody to human osteocalcin. The fragments were injected into an animal and the resulting antibodies were obtained. The antibodies can be used in the determination of the rate of bone absorption in bone metabolism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunoassay of human osteocalcin in diagnostic specimens - using sandwich assay with antibodies raised respectively to N-terminal and C-terminal sites on osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             02-OCT-1989;
10-FEB-1989;
       AAW01681;
                                                   AAW01681 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; fig 1; 80pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1990-275233/36.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-FEB-1990;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human osteocalcin fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-JAN-1991
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                                                                                                                                                                                                                                                                                                                                                               Sequence
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                                                                                                                                                                   YLYQWLGAPVPYPDPL
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                                                                                                                                                                                                                                                                l Similarity 100
16; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Honda H,
                                                                                                                                                                                                                                                                                                                                                               21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        musculoskeletal disorders; sandwich assay.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
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89JP-0030003
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                                                protein;
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                                                     49
                                                                                                                                                                                                                                                             Score 16; DB; Pred. No. 2.2.0; Mismatches
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Pred. No.
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, 2.1e-10;
thes 0;
                                                                                                                                                                                                                                                             DB 11; 1
2.2e-10;
hes 0;
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                                                                                                                                                                                                                                                                                                         Length 21;
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AAU10688
ID AAU1
XX
                                                                      RESULT
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В
                  Qγ
                                                                               Query Match
Best Local S
                                        Matches
                                                                                                          A method for determining concentration of osteocalcin in serum or plasma is improved with addition of divalent metal ions to inhibit decomposition of the protein. The method is useful in therapy and diagnosis of bone disease. The present sequence is osteocalcin (a vitamin K-dependent protein that is a component of the bone matrix, or alternatively bone Gla
                                                                                                                                                                                         Determn. of osteocalcin in serum or plasma - metal ions to inhibit decompsn. of the prote and diagnosis of bone disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BGP;
                                                                               Sequence
                                                                                                  protein)
                                                                                                                                                                      Disclosure;
                                                                                                                                                                                                                                  WPI;
                                                                                                                                                                                                                                                    Bergmann A,
                                                                                                                                                                                                                                                                                                     29-NOV-1993;
                                                                                                                                                                                                                                                                                                                       29-NOV-1993;
                                                                                                                                                                                                                                                                                                                                           01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                             DE4340597-A1
                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-APR-1997
                                                                                                                                                                                                                                                                      (HENN-) HENNING BERLIN GMBH. (BRAH-) BRAHMS DIAGNOSTICA G
1 YLYQWLGAPVPYPDPL
                   1 YLYQWLGAPVPYPDPL
                                                                                                                                                                                                                                 1995-201516/27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bone gla protein; osteocalcin; Vitamin K-dependent protein; matrix; therapy; diagnosis; assay; metabolic bone disease.
                                       l Similarity
16; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                               49
                                       Conservative
                                                                                                                                                                      Column 1;
                                                                                                                                                                                                                                                    Weckermann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                               ĀΑ;
                                                                                                                                                                                                                                                                                                    93DE-4340597
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                                                                                                                                                                                                                                                                                                                                                                                          /note= "underlined 46
                                                                                                                                                                                                                                                                                                                                                                                                               /note=
42
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23..29
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12
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                                                                                                                                                                                                                                                                                                                                                                                                                                  /label=
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                                                  100.0%;
  16
                   16
                                                                                                                                                                      9pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                     "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                       "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                 "underlined
                                                                                                                                                                                                                                                     æ
                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER
                                                                                                                                                                                                                                                                        GMBH
                                        0;
                                                 Score 16;
Pred. No.
                                        Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             specification"
                                       DB 16;
. 4.5e-10;
ches 0;
                                                                                                                                                                                                  protein, useful
                                                                                                                                                                                                    with addn. of divalent in, useful in therapy
                                                         Length 49;
                                        Indels
                                                                                                                                                                                                  therapy
                                        0;
                                                                                                                                          decomposition
                                       Gaps
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AAU10688

standard;

Protein;

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RESULT 19
AAR06631
ID AAR06
XX AR06
XX AR06
XX O9-JP
DT 09-JP
DE Humar
XX OStec
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                                                                                                                                                      밁
                                                                                                                                                                                                   Matches
                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                           The present invention relates to novel single nucleotide polymorphisms (SNPs) in the human bone gamma carboxyglutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as probes and primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds are useful for (developing) treatment of diseases associated with BGLAP polymorphic variant of the BGLAP protein (AAUJ0687).

Note: The present sequence is not given in the specification but is
                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; single nucleotide polymorphism; SNP; BGLAP; chromosome bone gamma carboxyglutamate protein; haplotyping; genotyping;
 Osteocalcin; musculoskeletal disorders; sandwich assay.
                       Human osteocalcin fragment
                                               09-JAN-1991
                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                               osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                       New haplotypes of the human bone gamma carboxyglutamate protein gene, useful to diagnose and treat diseases associated with the gene such as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-APR-2000; 2000US-195840P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-APR-2001; 2001WO-US12010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200177131-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Polymorphic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14-FEB-2002
                                                                      AAR06631;
                                                                                            AAR06631 standard;
                                                                                                                                                                                                                                                                     created
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bentivegna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GENA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAU10688;
                                                                                                                                                      52
                                                                                                                                                                                                            Local
                                                                                                                                                   2002-041288/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                     27; Page -; 53pp; English.
                                                                                                                                                                                                 . Similarity
16; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENAISSANCE PHARM INC
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                                                                                                                                                                                                 Conservative
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                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   osteopathic; variant.
                                                                                                                                                                                                                                             AA;
                                                                                                                                                                                                                                                                   indexer from the information given in the patent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chew
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                                                                                            protein;
                                                                                                                                                                                                           32.7%;
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                                                                                                                                                                                            J.08; .
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Substitution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Choi JY,
                                                                                                                                                                                                Score 16; DB; Pred. No. 8.3
                                                                                            15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BGLAP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of Glu
                                                                                                                                                                                                          DB 23;
8.3e-10;
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                                                                                                                                                                                                                     Length 100;
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RESULT 20
AAB91920
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Matches
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                           17-MAY-1999;
10-SEP-1999;
15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Immunoassay of human osteocalcin in di
sandwich assay with antibodies raised
and C-terminal sites on osteocalcin
                                                                                                       WO200069900-A2
                                                                                                                         Homo sapiens
Synthetic.
                                                                                                                                                     blood component;
hydroxyl; thiol;
                                                                                                                                                               Protection; endogenous therapeutic peptide; peptidase; blood component; modification; succinimidyl; maleimido
                                                                                                                                                                                          Bone Gla protein peptide SEQ
                                                                                                                                                                                                           22-JUN-2001 (first entry)
                                                                                                                                                                                                                                AAB91920;
                                                                                                                                                                                                                                                   AAB91920
                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                              Monoclonal antibodies (MAbs), OST-C7 and OST-C15) are raised this osteocalcin peptide fragment (C-terminal bases 43-49) an a shorter constituent of this (C-terminal bases 35-49) respectively. A further MAb (OST-N20) is raised to a fragment comprising N-terminal bases 1-20. A sandwich immunoassay is then carried out and musculoskeletal dis-orders can be diagnosed. See also AAR06630.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1990-275233/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-OCT-1989;
10-FEB-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Key
                                                                17-MAY-2000; 2000WO-US13576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (TEIJ ) TEIJIN KK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       08-FEB-1990;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9009587-A
                                                                                   23-NOV-2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                   36 IGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                  N
                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                 IGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                      l Similarity
14; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      K, Honda
                                                                                                                                                                                                                                                  standard; Peptide;
                                                                                                                                                                                                                                                                                                                                                                              15
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                                                                                                                                                                                                                                                                                                                                       Conservative
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                           99US-0134406.
99US-0153406.
99US-0159783.
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89JP-0030003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90WO-JP00155
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                                                                                                                                                     hormone; growth factor; neurotransmitter
                                                                                                                                                                                                                                                                                                  15
                                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                                                                                 100.0%;
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                                                                                                                                                                                          ID NO:1096
                                                                                                                                                                                                                                                                                                                                                 Score 14;
Pred. No.
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                                                                                                                                                                                                                                                                                                                                        Mismatches
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                                                                                                                                                                                                                                                                                                                                    DB 11;
3. 2.4e-08;
                                                                                                                                                                                                                                                                                                                                                         Length 15
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                                                                                                                                                                                                                                                                                                                                                                                                                                              re raised to 43-49) and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N-terminal
                                                                                                                                                              group;
                                                                                                                                                                         conjugation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 using
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                                                                                                                                                                amino;
                                                                                                                                                                                                                                                                                                                                        Gaps
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(CONJ-) CONJUCHEM INC

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RESULT 21
AAE18389
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptide composed of 3-50 amino acids. (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to albumin prevents or reduces the action of peptidases to increase length of activity (half life) and specificity as bonding to large molecules decreases intracellular uptake and interference with physiological processes. AAB90829 to AAB92441 represent peptides which can be used in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a reactive group (II) (e.g. succinimidyl and maleimido groups) attached the less therapeutically active amino acid region (IV), which covalently a less therapeutically active amino acid region (IV), which covalently
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  peptidase
Modulating proliferation or differentiation of mammalian skin or cell for treating hyperproliferative diseases, comprises topical
                                                                                                                                                                                                                                                                                                                                                                                                                                 07-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Page 554; 733pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Modifying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bridon DP,
                                               WPI; 2002-171552/22
                                                                                Holick MF
                                                                                                                                            22-JUN-2000; 2000US-213247P
                                                                                                                                                                          20-JUN-2001; 2001WO-US19650
                                                                                                                                                                                                                                          WO200198348-A2
                                                                                                                                                                                                                                                                         Homo sapiens.
                                                                                                                                                                                                                                                                                                 PTH; parathyroid related peptide; hyperproliferative skin disorder; psoriasis; ichthyosis; actinic keratosis; alopecia; skin cell growth; hair growth; wrinkle; wound healing; chemotherapy; skin cancer; PTHrP, bone Gla protein; BGP.
                                                                                                                                                                                                                                                                                                                                                                                                  Human BGP peptide #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAE18389;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAE18389 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                            (HOLI/) HOLICK M
                                                                                                                                                                                                                                                                                                                                                                Human; cell proliferation; cell differentiation; parathyroid hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GFQEAYRRFYGPV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and attaching therapeutic peptides to albumin prevents degradation, useful for increasing length of in vivo activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ezrin AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26.5%;
100.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 13; DB; Pred. No. 2.6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ā
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2.6e-07;
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AAW34268
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Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  or derivative, identical to parathyroid hormone (PTH) or parathyroid related peptide (PTHP). Method of the invention is useful for inhibiting hyperproliferative skin disorders e.g. psoriasis, ichthyosis, actinic keratosis, skin cancer, inhibiting hair growth or preventing hair regrowth. It is also useful for stimulating skin cell growth, rejuvenating aged skin, preventing and treating skin wrinkles, enhancing wound healing, stimulating hair growth, maintaining hair growth, treating or preventing female or male pattern baidness, treating chemotherapy induced alopecia and for stimulating epidermal cell growth and hair follicle cell growth. The present sequence is a peptide of human bone Gla protein (BGP) used in the method of the
                                  Antibody specific for Glul7-osteocalcin, or its fragment - diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                       Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                Gla21-osteocalcin peptide fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to a method of modulating proliferation or differentiation of mammalian skin or hair cell. The method involtopical administration of a liposome encapsulated peptide, its sor derivative, identical to parathyroid hormone (PTH) or parathy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         parathyroid hormone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     administration of liposome encapsulated-peptide identical
                                                                                                                                                     27-FEB-1997;
10-APR-1996;
                                                                                                                                                                                                                                                                                                                                                  Homo
                                                                                                                                                                                                                                                                                                                                                                          osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW34268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW34268 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                  Kimura T,
                                                                                                                                                                                          10-APR-1997;
                                                                                                                                                                                                                                             WO9738309-A1
                                                                                                                                                                                                                                                                                    Modified-site
                                                                                                                                                                                                                                                                                                                         Key
                                                                                                                                                                                                                                                                                                                                                                                                                                           23-APR-1998
                                                                                                                          (EISA ) EISAI CO LTD.
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                                                                                                                                                                                                                                                                                                           Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         invention
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                                                                        1997-512875/47.
                                                                                                                                                                                                                                                                                                                                                 sapiens
                                                                                                  Morimoto
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΑĄ;
                                                                                                                                                     97JP-0043331
96JP-0088608
                                                                                                                                                                                          97WO-JP01246
                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                       /note=
                                                                                                                                                                                                                                                                                               /note= "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26.5%;
                                                                                                                                                                                                                                                                      "gamma-carboxyglutamic acid"
                                                                                                   Sakakibara
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Claim 6; Page 18;

28pp; Japanese

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                                                                 Sequence
                                                                                 Peptide is useful osteocalcin level
                                                                                                          Claim 1;
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3.9e-05;
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RESULT 24
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                  The present invention relates to modified biological peptides with increased biological potency, prolonged activity and/or increased half-life. The peptides of the invention are useful in the treatment of glucose intolerance which may be associated with insulin resistance pathologies, and in the treatment of type II diabetes. They are also
                                                                                                                                                                                              Novel modified biological peptide with increased biological potency, prolonged activity, increased half-life, for treating glucose intolerance associated or not with insulin resistance pathologies, ty II diabetes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Increased biological potency; prolonged activity; increased half-life; glucose intolerance; insulin resistance; type II diabetes; bone diseas cancer; inflammatory disorder; obesity; developmental disorder;
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                                                                                                           The present invention relates to a method for presenting peptides or proteins on the surface of host bacteria. The method can be used to isolate, from polyclonal mixtures, monospecific antibodies that bind selectively to a particular surface-bound polypeptide, or more generally any specific binding partners, and for epitope mapping. The present sequence is a vector encoded protein fragment described in the
                                                                                                                                                                                                                               Cell-surface presentation of peptides or proteins, useful e.g. isolating monospecific antibodies, comprises\expression of a function of sequence with truncated intimin, in bacteria -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regeneration in patients with intestinal diseases, inhibition of interleukin-8 production, stimulation of acid release, homeostasis, regulation of exocrine and endocrine secretions, smooth muscle contraction, feeding, blood pressure, body temperature and cell growt regulation of food intake and energy balance, and stimulation of pancreatic secretion or cell growth. ANU85971-ANU86019 represent the modified biological peptides of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   inflammatory responses, obesity, autism, pervasive developmental disorders, hyperproliferative skin diseases, hormone-dependent diseases, they can be used for regulating blood glucose, enhancing mucosal
                                                                         Sequence
                                                                                                sequence is a vector encoded protein fragment exemplification of the invention.
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LGAPVPYPDPL
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Best Local S
Matches 11
                                                                                                                                                                           This is the amino acid sequence of the rat osteocalcin, deduced from the coding exons of the rat rOC gene (see AAV46432). The invention pertains to a method for expressing endogenous genes in differentiated cells of a specific type. The method involves contacting pluripotent stem cells capable of maturing into differentiated cells with a nucleic acid comprising an exogenous gene linked to a regulatory element capable of controlling expression of the exogenous gene in the differentiated cells. A population of transduced stem cells capable of maturing into differentiated cells expressing the exogenous gene in a tissue of interest, such as bone or cartilage, and the exogenous gene is operably linked to at least one osteocalcin regulatory element derived from the human osteocalcin.
                                                                                                                                       osteocalcin regulatory element derived from the human osteocalcin gene (hOC) promoter (see AAV46429). The exogenous gene can encode a therapeutic protein useful for treating a disease, especially osteoporosis, osteoponia, osteosarcoma, primary malignancy or
                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                        Expression of exogenous genes in differentiated cells - by transducing pluripotent stem cells capable of maturing into differentiated cells with nucleic acid comprising exogenous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-MAR-1998;
                                                                                                                               metastases
                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Page 43-45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1998-495839/42.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  W09839427-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Promoter; tissue-specific gene expression; skeletal tissue;
stem cell; bone; cartilage; osteocalcin; rOC gene; rat;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW76097;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAW76097
                                                                                                                                                                                                                                                                                                                                                                                               useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Quesenberry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Frenkel B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rat osteocalcin protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (UYMA-) UNIV MASSACHUSETTS
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78
                       29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14 LGAPVPYPDPL
CDELADHIGFQ
                       CDELADHIGFQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    therapy.
                                                 l Similarity
11; Conserv
                                                                                                                                                                                                                                                                                                                                                                                             for, e.g. treatment of osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAV46432.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                      99
                                                                                                                               (all claimed).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hou
P,
                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                      AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 osteopenia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US04421
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lian JB, Nil
in GS, Stein
                                                               22.4%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                   63pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 osteosarcoma; cancer; metastasis;
                                                  0
                                                             Score 11;
Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                    English.
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                                                  Mismatches
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                                                               DB 19;
0.00022;
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                                                  Gaps
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RESULT 27
AAW04605
ID AAW04605
AC AAW04
RESULT 28
AAY 584 30
ID AAY 5
XX AAY 5
AC AAY 5
XX 27-N
XX 27-N
XX E t E
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A method of obtaining sequence information about a polymer (e.g. DNA, RNA, peptide nucleic acids, proteins, peptides and carbohydrates) comprising monomers of known mass has been claimed. The present sequence represents a fragment of osteocalcin (7-19), and was used as an example as a digestion before analysis by mass spectrometry, using this novel on-plate strategy. Total sequence information or from a nine well digestion can be represented in a single digestion or it is often derived from two or more wells. The methods, apparatus and kit (claimed) can be used for the analysis of polymers, particularly biopolymers, eq. DNA, RNA, peptide nucleic acids, proteins, peptides and carbohydrates. It provides a rapid, automated and cost effective sequencing of polymers, with a statistical certainty.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequencing polymers, e.g. DNA, RNA, peptide nucleic acids, proteins, etc. - by obtaining mass to charge ratios of polymer fragments, pref. using mass spectrometer, and performing statistical analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI;
    Synthetic
                                                                              baculovirus
                                                                                                                        E tag; fibroblast growth factor; FGF-16; rat;
                                                                                                                                                                                                                                                                                 27-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                AAY58430;
                                                                                                                                                                                                                                                                                                                                                                                                                                               AAY58430 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 2; Page 32; 86pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patterson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (PERS-) PERSEPTIVE BIOSYSTEMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19-MAY-1995;
19-MAY-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-NOV-1996
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mass spectrometry; polymer analysis; biopolymer analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Osteocalcin 7-19 fragment for mass spectrometry analysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-AUG-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 GAPVPYPDPL 10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-012308/01
                                                                                                                                                                                                  peptide,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity
10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13 AA;
                                                                              expression system.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                 (first entry)
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                                                                                                                                                                                                  SEQ
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95US-0446055.
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                                                                                                                                                                                                  ID NO:6
                                                                                                                                                                                                                                                                                                                                                                                                                                           peptide;
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100.0%; Pr
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0.00047;
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RESULT 29
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stimulating the proliferation and development of hepatocytes both in vitro and in vivo. The isolated nucleic acid molecules may be used directly in cell or gene therapy applications to treat or prevent liver disorders, including hepatic cirrhosis, fulminant liver failure, damage caused by acute viral hepatitis and toxic insults to the liver. This sequence represents an E tag, DNA encoding which was fused to the 3' end of the rat FGF-16 coding region, along with DNA encoding a hexahistidine tag. The tagged rat FGF-16 cDNA was cloned into a
                                                                                                                                                                Fibroblast growth factor; FGF; FGF-like polypeptide; mitogenic; fat deposition; vulnerary; antiulcer; dermatological; anoretic; antidiabetic; antiinflammatory; cytostatic; hepatic; virucide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fibroblast growth proliferation and disorders -
           31-MAR-2000; 2000US-0540118
                                       02-APR-2001; 2001WO-IB00664.
                                                                   04-OCT-2001
                                                                                               WO200172957-A2
                                                                                                                         Synthetic
                                                                                                                                                   neuroprotectant;
                                                                                                                                                                                                                        E tag used
                                                                                                                                                                                                                                                     07-JAN-2002
                                                                                                                                                                                                                                                                                 AAG65668;
                                                                                                                                                                                                                                                                                                            AAG65668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  increases hepatic production of trigly
cerides and serum proteins (e.g., albumin). FGF-16 nucleic acids
 {\it and/or} proteins may be used for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FGF-16 has hepatocyte proliferation and growth activity, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to rat and human fibroblast growth factor-16 (FGF-16, AAY58428-Y58429), and nucleotides which encode these proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2000-085497/07.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         baculovirus expression system in an exemplification of the present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example III; Column 14; 33pp; English
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les 10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                           7 GAPVPYPDPL 16
                                                                                                                                                                                                                                                                                                                                                                                1 GAPVPYPDPL 10
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                                                                                                                                                                                                                                                                                                            standard;
                                                                                                                                                                                                                        for recombinant expression of FGF-like polypeptide.
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                                                                                                                                                                                                                                                    (first entry)
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                                                                                                                                                   pulmonary; gene therapy; vaccine; human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           factor family polypeptide which stimulates growth of hepatocytes is useful for treating hepatic
                                                                                                                                                                                                                                                                                                          peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Danilenko
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Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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0.00047
                                                                                                                                                                                                                                                                                                                                                                                                                                                     00047;
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Best Local S
Matches 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               useful for treatment and diagnosis of e.g. bowel disease -
                                                                                                                                                                                                                                                                                  Fibroblast growth factor 20; FGF-20; Parkinson's disease; substantia nigra; dopaminergic neuron; cochlea-associated disease; otosclerosis; Cogan's syndrome; Meniere's disease; Pendred's syndrome; diabetes-associated hearing loss; congenital malformations; autoimmune disease-related hearing loss; age-related hearing loss; deafness; ischaemia-related hearing disturbance; immunogen; deafness; totalemia-related hearing disturbance; immunogen;
                                                    (CHIR )
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hepatitis, multiple sclerosis, respiratory distress syndrome, tumors of the eye, etc., also for maintaining organs before transplant and supporting culture of primary cells and tissues. Sequences AAG65668-69 represent amino acid sequences of protein tags used for recombinant expression of FGF-like polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     deposition of fat. The FGF-like polypeptides, polynucleotides and specific antibodies and modulators are useful for treating a very wide range of diseases and conditions, e.g. wounds, ulcers, skin aging, obesity, diabetes, alopecia, inflammatory bowel disease, emphysema, viral
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention provides human nucleic acids encoding fibroblast growth factor (FGF)-like peptide. The FGF-like polypeptides can be expressed standard recombinant methodology and are mitogenic for a wide range of cells, inducing differentiation and proliferation, and inhibiting deposition of fat. The FGF-like polypeptides, polynucleotides and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Itoh
WPI;
                         Itoh N,
                                                                                               22-OCT-1999;
08-MAR-2000;
                                                                                                                                         20-OCT-2000; 2000WO-US29237
                                                                                                                                                                        03-MAY-2001
                                                                                                                                                                                                   WO200131008-A2
                                                                                                                                                                                                                              Synthetic
                                                                                                                                                                                                                                                                                                                                                                                       E-tag peptide
                                                                                                                                                                                                                                                                                                                                                                                                                   07-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAU02089 standard; Peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Example 3; Page 117; 172pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (ITOH/)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 GAPVPYPDPL 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAPVPYPDPL 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001-611623/70
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                                                     CHIRON CORP. UNIV KYOTO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HOTI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                          ischaemia;
                         Kavanaugh WM
                                                                                                                                                                                                                                                                       neuro-degenerative disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20.4%; Score 10; DB llarity 100.0%; Pred. No. 0. Conservative 0; Mismatches
                                                                                                2000US-0187856
                                                                                                                                                                                                                                                                                                                                                                                                                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A,
                                                                                                               99US-0161162
                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           æ
                                                                                                                                                                                                                                                                      tendonitis; wound healing;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 22; I
0.00047;
hes 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  wounds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 factor-like peptide, and inflammatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
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RESULT 31
AAB70172
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         syndrome, Meniere's disease, Pendred's syndrome, diabetes-associated hearing loss, congenital malformations, autoimmune disease-related hearing loss, age-related hearing loss, deafness associated with lack of FGF receptor and ischaemia-related hearing disturbance. Other diseases thought to be amenable to FGF therapeutic activity include neuro-degenerative diseases, tendonitis, wound healing, stroke and ischaemia. The polypeptides can be used to screen for agonists and antagonists. Epitope bearing fragments of the FGF-20 polypeptides can used to raise anti-FGF-20 antibodies.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polypeptides and nucleic acids encoding them are useful for providing trophic support for cells in a patient, especially a patient with Parkinson's disease, and FGF-20 is additionally used to treat patients with conditions of the substantia nigra. The polypeptides and nucleic acids are useful for alleviating human brain conditions by slowing degeneration, restoring function of, or increasing the number of, degeneration of or restoring the polypeptides and and nucleic acids are also useful for alleviating cochiea-associated disease by slowing degeneration of or restoring or maintaining normal function of the structure of cochiea, where the disease structure of cochiea, where the disease structure disheter associated
                                                                                                                                                                                                                                                                                                                                                                       E tag.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The sequence an E-tag which can be incorporated into a fusion protein (to allow purification of the fusion protein) with Human or rat fibroblast growth factor 20, FGF-20. The FGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New human and rat Fibroblast Growth Factor (FGF) polypeptides for providing trophic support for cells used in Parkinson patients, and alleviating brain and cochlea conditions -
                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB70172;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB70172 standard; peptide; 13 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 6; Page 44; 73pp; English.
                                                                            WPI; 2001-182730/18
                                                                                                                                          (UYVI-) UNIV VIRGINIA PATENT FOUND
                                                                                                                                                                              23-JUL-1999;
                                                                                                                                                                                                          21-JUL-2000; 2000WO-US19843.
                                                                                                                                                                                                                                            01-FEB-2001
                                                                                                                                                                                                                                                                          WO200107083-A1
                                                                                                                                                                                                                                                                                                         Synthetic
                                                                                                                                                                                                                                                                                                                                        Antibody; sperm;
                                                                                                                                                                                                                                                                                                                                                                                                         26-APR-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAPVPYPDPL
                                                                                                            JC,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                           Norton
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
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                                                                                                                                                                              99US-0145512
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                                                                                                                                                                                                                                                                                                                                         S19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.4%;
                                                                                                                                                                                                                                                                                                                                        contraception.
                                                                                                            Diekman
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 10;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00047;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
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New recombinant antibody derivative of monoclonal antibody S19, useful as a reagent for purifying or detecting human spermatozoa, as an active ingredient of a spermistatic agent, or as a component of a spermicidal

contraceptive

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RESULT 32
AAO15409
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Best Local :
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                                       The invention comprises the amino acid and coding sequences of two mammalian nuclear receptor cofactor proteins (CF7 and CF8). The CF7 and CF8 protein sequences of the invention are useful for screening agents that are capable of inhibiting the cellular function of cofactor CF7 and/or CF8. The CF7 and CF8 DNA sequences are useful for modulating genes involved in cellular functions, such as: regulation of metabolism and cell homeostasis, cell proliferation and differentiation, pathological cellular abbrrations, or cellular defence mechanisms. The present amino acid sequence represents a peptide tag that was used in the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          specifically binding to sperm agglutination antigen-1 (SAGA-1). The recombinant antibody has two peptide fragments of the S19 antibody and the fragments are joined together by a linker. The recombinant monoclonal antibodies are useful in a passive immunity composition for contraception as they inhibit the ability sperm to fertilize an egg. The antibodies may be used e.g. as an active ingredient of a spermistatic agent, or as a component of a spermicidal contraceptive.
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                                                                                                                                                                                                                                                                           Disclosure; Page 16; 68pp; English.
                                                                                                                                                                                                                                                                                                                                                Novel nuclear receptor cofactors, CF7 and CF8 for identifying modulators useful for inhibiting cellular function of cofactor and for treating metabolic disorders, immunological indications and hormonal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (LION-) LION BIOSCIENCE AG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21-NOV-2001;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pathological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalian; nuclear receptor cofactor; CF7; CF8; metabolism regulation; cell homeostasis; cell proliferation; differentiation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-SEP-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The present
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Sequence
                                                                                                                                                                                                                                                                                                                               dysfunctions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Jackson D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-NOV-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tag -
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13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Casari G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cellular aberration; cellular defence mechanism; E tag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000EP-0125524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001WO-EP13548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tag
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      48pp;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Suckow
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 10;
Pred. No.
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0.00047;
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RESULT 33
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  Query Match
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Matches 10
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Best Local :
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                                                                                                                                                                                           The present invention relates to CFI1, a novel human nuclear receptor cofactor (ABB83451). CFI1 modulates genes involved in various cellular functions such as regulation of metabolism and cell homeostasis, cell proliferation and differentiation, pathological cellular aberrations or cellular defence mechanisms. CFI1 binds retinoic acid receptor (RAR; NRIA) and thyroid hormone receptor (TR; NRIB) but not retinoid x receptor (TR; NRIB) or steroid hormone receptors. CFI1 expression is restricted to the central nervous system and could be only on the central nervous system and could be confined to neurons in the denate gyrus of the hippocampus, the amygdala, thalamic and hypothalamic regions. Antagonists to CFI1 are useful in the development of drugs against diseases such as metabolic disorders, immunological indications,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nuclear receptor cofactor; CF11; metabolism regulation; cell homeostasis; cell proliferation; cell differentiation; central nervous system; metabolic disorder; immunological disease;
                                                                                                                  hormonal dysfunctions and/or neurosystemic diseases or related to defect in neuronal diseases. The present sequence is a peptide tag, which may bused to generate recombinant CF11 proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Novel polypeptide useful for screening agents capable of inhibiting activating the cellular function of cofactor of mammallan nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         E tag.
                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Page 15; 59pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              receptor CF11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-583601/62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Jackson D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (LION-) LION BIOSCIENCE AG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               normonal dysfunction; neuronal
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    Similarity
10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Casari G,
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                           20.4%;
                           .08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     English.
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                             Score
Pred.
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Pred. No.
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                           . 10;
DB 23,
0.00047;
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                                             Length 13;
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AAU98372
ID AAU9
RESULT 35
AAU78634
ID AAU78
XX
AC AAU78
AC AAU78
AC AAU78
XX
XX
DT 18-JU
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KW Pregn
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Best Local
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drug desi
                                                                                                                                                                                                                                                                                                                                                       The invention is also useful for screening for nuclear receptors, for screening drugs for agonist and antagonist activity and for screening drugs useful in regulating physiological responses associate with CF9, and in structural drug designing. The molecules of the invention are useful for identifying compounds for treating metabolic disorders, immunological indications, hormonal dysfunctions and/or neurosystemic diseases. The invention can be useful as intermediates for making cellular preparations for cofactor binding assays, which are useful in drug screening. The present amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200244365-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present invention relates to a new mammalian nuclear receptor cofactor 9 (CF9) polypeptide. The invention is useful for screening agents which are capable of inhibiting the cellular function of CF9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Disclosure; Page 16; 62pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2002-527709/56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Jackson D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28-NOV-2000; 2000EP-0126022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           neurosystemic disease; cofactor binding assay; E tag.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Synthetic E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          24-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAU98372 standard; Peptide;
              Pregnane X;
                                    Synthetic E tag peptide sequence.
                                                                    18-JUN-2002
                                                                                               AAU78634;
                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    indications, hormonal dysfunctions and/or neurosystemic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Novel mammalian nuclear receptor cofactor 9 polypeptide useful for identifying compounds for treating metabolic disorders, immunological
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (LION-) LION BIOSCIENCE AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-NOV-2001; 2001WO-EP13891
                                                                                                                          AAU78634 standard;
                                                                                                                                                                                                                                                                                                                                               sequence represents
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                                                                                                                                                                                              7 GAPVPYPDPL 16
|||||||||
1 GAPVPYPDPL 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       design;
                                                                                                                                                                                                                                                  10;
                                                                                                                                                                                                                                                                 Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Casari G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tag
              receptor; PXR; cofactor; xenobiotic;
                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                    (first entry)
                                                                                                                                                                                                                                                                                                        AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              peptide sequence.
                                                                                                                          Peptide; 13 AA.
                                                                                                                                                                                                                                                                                                                                               the E tag peptide sequence,
                                                                                                                                                                                                                                                               20.4%;
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                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                               Score 10;
Pred. No.
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                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                               DB 23; 1
                                                                                                                                                                                                                                                                                                                                                The present amino acid nce, as described in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dysfunction;
                                                                                                                                                                                                                                                                            Length 13
              E tag.
                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       diseases
                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                             associated
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RESULT 36
AAE18828
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Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            The present invention relates to a new nucleic acid molecule and its encoded polypeptide. The nucleic acid codes for a cofactor of the pregnane x nuclear receptor (PXR). The polypeptide encoded by the nucleic acid comprises 225 amino acids or 293 amino acids fully defined in the specification. The nucleic acid is useful for making vectors and transforming cells, both of which are ultimately useful for producing the cofactor proteins. The nucleic acids may also be used for determining a subject's response to xenobiotic substances or drugs. The proteins or complexes are useful for screening substances that bind the proteins or complexes, particularly agonists or antagonists of PXR. The present amino acid sequence represents the E tag peptide that was used in the invention to facilitate purification of recombinant proteins. The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New nucleic acids and cofactors of the pregnane x nuclear receptor (PXR), which the nucleic acid encodes, useful for screening agonists antagonists of PXR, and for determining a subject's response to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200218420-A2
                                                                                                                                                    epidermolysis; erosive gastritis; inflammatory bowel disease; ulcer; oesophagitis; Crohn's disease; hyaline membrane disease; emphysema; pulmonary fibrosis; hepatic cirrhosis; liver failure; angiogenesis; multiple sclerosis; neurodegenerative disease; lung abnormality;
                                                                                                                                                                                                                                                   E tag used in the production of FGF-like polypeptides.
                                                                                                                                                                                                                                                                                                                                             AAE18828 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 17; 102pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               xenobiotic substances or drugs
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (LION-) LION BIOSCIENCE
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                                                                                                                        gene
                                                                                                                                                                                                                                                                                  17-MAY-2002
                                                                                                                                                                                                                                                                                                                  AAE18828;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cofactor
                                                          US2002001825-A1
                                                                                                                                                                                                                    Fibroblast growth factor; FGF-like protein; wound healing; bullosa;
                                                                                                                                                                                                                                                                                                                                                                                                                           1 GAPVPYPDPL 10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAPVPYPDPL 16
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                                                                                          sapiens
                                                                                                                     therapy;
                                                                                                                                       hepatitis; respiratory distress syndrome; tumour; skin aging;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  proteins of the invention are useful for screening
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13
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                                                                                                                                                                                                                                                                                (first entry)
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                                                                                                                        vaccine;
                                                                                                                                                                                                                                                                                                                                             peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20.4%; Score 10; 100.0%; Pred. No.
                                                                                                                        human; E tag.
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02-APR-2001; 2001US-0822485

03-JAN-2002

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RESULT 37
AAM48056
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CC polypeptides and nucleic acid molecules encoding such polypeptides.

CC sequences of the invention are useful for treating, preventing or

CC ameliorating a medical condition. They are useful for treating dermal

CC wounds, epidermolysis, bullosa, male pattern alopecia, gastric ulcer,

CC duodenal ulcer, erosive gastritis, oesophagitis, oesophageal reflux

CC disease, inflammatory bowel disease, Crohn's disease, radiation- or

CC chemotherapy-induced gut toxicity, hyaline membrane disease, necrosis

CC of the respiratory epithelium, emphysema, pulmonary inflammation,

CC pulmonary fibrosis, hepatic cirrhosis, toxic insults to the liver,

CC fulminant liver failure, viral hepatitis, mucositis, multiple sclerosis

CC syndrome or other lung abnormalities, tumours of the eye or the other

CC tissues and organs. FCP-like polypeptides are useful stimulating

CC angiogenesis, promoting wound healing, modulating differentiation of

CC maintaining organs before transplantation and bone marrow cells and

CC maintaining organs before transplantation and for supporting cultures

CC of primary cells and tissues. Sequences of the invention are also

CC used in the production of FCF-like polypeptides.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 10
                                                                                                                                                                                     Phenotype;
                                                                                                                                                                                                                     E-tag sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to fibroblast growth factor (FGF)-like polypeptides and nucleic acid molecules encoding such polypep
                               09-MAY-2000; 2000US-202912P
                                                             09-MAY-2001; 2001WO-US15092
                                                                                                                           WO200186297-A2
                                                                                                                                                         Synthetic
                                                                                                                                                                                                                                                      14-MAR-2002
                                                                                                                                                                                                                                                                                     AAM48056;
                                                                                                                                                                                                                                                                                                                   AAM48056 standard; peptide; 13 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Novel fibroblast growth factor-like polypeptide useful for treating, ameliorating and/or preventing dermal wounds, gastric ulcer, Crohn's disease and bulmonary inflammation
(DGIB-) DGI BIOTECHNOLOGIES INC
                                                                                              15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 3; Page 31; 63pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                               1 GAPVPYPDPL 10
                                                                                                                                                                                                                                                                                                                                                                                                                              7 GAPVPYPDPL 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2002-187704/24
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10; Conserv
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                                                                                                                                                                                     protein binding partner; ligand; E-tag
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                      (first entry)
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0.00047;
hes 0;
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RESULT 38
AAY70693
ID AAY70
XX AAY70
DT 18-JU
XX AATT
KW Inmu
KW ITAT
KW ITAT
XX Escl
XX Escl
XX W02
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention relates to identifying a naturally occurring binding partner or binding partner precursor for a target, comprising comparing the identified amino acid sequence motifs to known amino acid sequences of a genome and identifying a gene product of the genome possessing the motif as the naturally occurring binding partner or partner precursor, for the target. The method is useful for determining the influence which specific genotypes have on phenotypes and for obtaining peptides which may be used to identify the natural protein partner of the target and enable synthesis of peptides which alter the phenotype of cells expressing the target. The method may also be used to identify peptide ligands capable of activating or inhibiting gene products through their ability to bind to such gene products as well as the activity and function of the gene products themselves. The present sequence is that of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Attractin; immune response; macrophage; monocyte; T cell; cancer; scFv; immunostimulant; immunosuppressed patient; immunodeficiency syndrome; transplant; autoimmune disease; antibody; single chain variable fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200015651-A1.
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                                                                                                                                                                                 WPI; 2000-271373/23
                                                                                                                                                                                                                                        Duke-Cohan JS,
                                                                                                                                                                                                                                                                                                                                                                                                                14-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E. coli antibody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a tag sequence for peptide library sequences useful to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Example 1; Page 20; 47pp; English.
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                                                                                                                     Isolated nucleic acids encoding human attractin polypeptides useful for
                                                                                                                                                                                                                                                                                              (DAND ) DANA FARBER CANCER INST
                                                                                                                                                                                                                                                                                                                                                       14-SEP-1998;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7 GAPVPYPDPL 16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the genome having the motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goldstein N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                    98US-0100137
                                                                                                                                                                                                                                                                                                                                                                                                                99WO-US20948
                                                                                                                                                                                                                                     Schlossman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            derived peptide to isolate attractin specific scrv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20.4%;
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
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0.00047;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
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Example 7;

Page 48; 120pp; English

enhancing immune responses

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RESULT 39
AAY05366
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Best Local 9
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                   This sequence is the single-stranded antibody of the invention, that has the capability of binding to a hepatitis B virus (HBV) core protein. Therapeutic agents can be formulated with the antibody for treatment of HBV infections by stopping proliferation of the virus through inhibition of viral DNA synthesis, and the gene encoding the antibody can be applied.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             are encoded by alternatively spliced mRNA molecule transcribed from a single gene. The present sequence is a peptide downstream to kappa light chain of an E. coli antibody. Antibody directed against this region is used in an affinity column to isolate E. coli soluble single chain variable fragment (scFv) specific for attractin. Attractin can be used to enhance immune response
                                                                                                                                                                                                           Single-stranded antibody against hepatitis B virus core protein, applicable as (gene) therapeutic agents for treatment of hepatit viral infections
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Single stranded antibody; hepatitis B virus; HBV core protein; HBV infection; viral proliferation inhibitor; viral DNA synthe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           which may also be used antibodies can be used
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               in immunosuppressed patients such as those undergoing chemo- and radio-therapy treatment for cancer or those suffering from common variable immunodeficiency syndrome. The protein may also be used screen modulators (agonists and antagonists) of immune responses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The patent discloses four forms of human attractin polypeptides which enhance immune response by promoting macrophage and monocyte spreading in the presence of T cells. These include soluble attractin-1 and -2 and membrane attractin-1 and -2. These various forms of attracti
                                                                                                                                                             Example
                                                                                                                                                                                                                                                                                                                                                                          Hayashi N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       02-SEP-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   W09911792-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY05366 standard; peptide; 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                (HAYA/)
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                                                                                                                                                                                                                                                                                                                                                                                                                        OMUS)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAPVPYPDPL 16
                                                                                                                                                                                                                                                                                                      1999-243623/20
DB; AAX33934.
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                                                                                                                                                                                                                                                                                                                                                                                                                      HAYASHI N.
SUMITOMO PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                               Page
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                                                                                                                                                                                                                                                                                                                                                                          Tohdoh N,
  6
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  viral proliferation inhibitor; viral DNA synthesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97JP-0237054
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-JP03921
                                                                                                                                                               ;83
therapy
                                                                                                                                                          72pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      stranded antibody
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to regulate immune reactions. Attractin to inhibit immune response in transplant afflicted with autoimmune disease.
                                                                                                                                                                                                                                                                                                                                                                                                                      CO LTD
                                                                                                                                                                                                                                                                                                                                                                        Yamamoto H,
                                                                                                                                                             English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 10;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
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                                                                                                                                                                                                                                                                                                                                                                          Yamamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 21;
0.00054;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         These various forms of attractin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 15
                        antibody can be applied
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         from common
                                                                                                                                                                                                                                hepatitis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
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RESULT 41 AAU88451

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RESULT 40
AAE08623
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Best Local :
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Best Local
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                                                                                                      The invention relates to nucleic acids encoding modified cytokine polypeptides (i.e. modified p40 and p35 polypeptides). The modified cytokine polypeptides have T-cell proliferative and interferon (IFN)-gamma induction activities. The polypeptides and polynucleotides of the invention are useful for treating various diseases e.g. bacterial infections, AIDS, diabetic retinopathy and cancer. The polypeptide and polynucleotide may also be useful accine adjuvant, to enhance a vaccinated host's cell-mediated immunity for protective response to a pathogen. The present sequence is EHtag peptide used for purification of human wild-type or modified p35 polypeptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AIDS;
p35; p
                                                                                                                                                                                                                                                Nucleic acids encoding modified cytokine polypeptides (i.e. modified p40 and p35 polypeptides), useful for treating various diseases e.g. diabetic retinopathy and cancer -
                                                                                                                                                                                                                                                                                             WPI;
                                                                                                                                                                                                                                                                                                                                                            02-DEC-1999; 99US-0169035
28-NOV-2000; 2000US-0169035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                    Sequence
                                                                                                                                                                                                                            Example 1; Page 143; 223pp; English.
                                                                                                                                                                                                                                                                                                                  Leong SR,
                                                                                                                                                                                                                                                                                                                                       (MAXY-) MAXYGEN INC
                                                                                                                                                                                                                                                                                                                                                                                           30-NOV-2000; 2000WO-US32664
                                                                                                                                                                                                                                                                                                                                                                                                                  07-JUN-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Cytokine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EHtag peptide
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                p40; EHtag.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAPVPYPDPL 13
GAPVPYPDPL
                    GAPVPYPDPL
                                                                                                                                                                                                                                                                                              2001-502381/55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           diabetic retinopathy; cancer;
                                          10;
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10; Conser
                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       T-cell;
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                                          Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                    ΑĄ;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       interferon-gamma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             peptide;
                                                                                                                                                                                                                                                                                                                   J,
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Pred. No.
                                                   Score 10;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A
                                           Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IFN-gamma; bacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 20; 1
0.00063;
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B
                                                    .0008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cell-mediated
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                                                            Length 24;
                                          Indels
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           immunity;
                                          0;
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                                          Gaps
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RESULT 42
AAU88442
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AC AAU88
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Best Local
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                                                                                                                                                                                                                                                                                The invention relates to a method of modulating insulin activity in mammallan cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are antagonists of the insulin-like growth factor-1 (IGF-1) receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful therapeutics and research reagents. AAU88034-AAU90957 represent IR and/or IGF-1 receptor-binding peptides and related amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cytostatic; antidiabetic; neuroprotective; cerebroprote ophthalmological; insulin; receptor; gene therapy; dial insulin like growth factor-1; IGF-1; tumour; prostate; diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Beasley J, I
Brissette R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    diabetic neuropathy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 28; Page 132; 390pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     diabetes and tumours, comprises using insulin-like growth factor receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Modulating insulin activity in mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2002-025774/03.
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               18-JUN-2002
                                          AAU88442;
                                                                   AAU88442 standard;
                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAU88451 standard; Peptide;
                                                                                                                                       24
                                                                                                                                                                                                      Local
                                                                                                                                                                7 GAPVPYPDPL 16
                                                                                                                                       GAPVPYPDPL 33
                                                                                                                                                                                                                                                                          invention.
                                                                                                                                                                                           Similarity
10; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOVO NORDISK AS.
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                                                                                                                                                                                                                                               38 AA;
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                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000WO-US08528
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               (first entry)
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Spetzler J, Cheng
                                                                  Peptide;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    comprises using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hsiao
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Ostergaard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ian cells, for peptides that
                                                                                                                                                                                                      DB 23;
0.0012;
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                                                                                                                                                                                                                  Length 38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Brandt
                                                                                                                                                                                           Indels
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bind to s
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insulin
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AAW19897
ID AAW19897
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KW Carci
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                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ophthalmological; insulin; receptor; gene therapy; diabetes; insulin·like growth factor·l; IGP·l; tumour; prostate; breast; diabetic retinopathy; neurological diseases; stroke; diabetic neuropathy.
                         Carcinoembryonic antigen; CEA; human; antibody; scFv; tumour marker; lung cancer; breast cancer; colon canc
              adenocarcinoma;
                                                                  Vector
                                                                                             07-DEC-1997
                                                                                                                       AAW19897;
                                                                                                                                                  AAW19897
                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 28; Page 131; 390pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Modulating insulin activity in mammalian cells, diabetes and tumours, comprises using peptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2002-025774/03.
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Brissette R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-MAR-2000; 2000WO-US08528
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    insulin-like growth factor receptors
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Insulin/insulin-like growth factor receptor-binding peptide #398
                                                                                                                                                                                                                    25 GAPVPYPDPL 34
                                                                                                                                                                                                                                              7 GAPVPYPDPL 16
                                                                                                                                                                                                                                                                         10;
                                                                                                                                                                                                                                                                                                                                                      invention.
                                                                  pUC119EHIS-encoded polypeptide
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                                                                                                                                                                                                                                                                                    Similarity.
                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                             39
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Retzler
                                                                                                                                                                                                                                                                         Conservative
                                                                                             (first entry)
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            diagnosis; vector; plasmid
                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                    20.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schaeffer
: J, Cheng
Hsiao K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      F
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                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                    Score 10;
Pred. No.
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Ostergaard
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0.0012;
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Mandecki WS

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RESULT 44
AAU88438
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Matches 10
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07-DEC-1995;
23-MAY-1996;
                                                                                              Cytostatic; antidiabetic; neuroprotective; cerebroprotective; ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IGF-1; tumour; prostate; breast; diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                             This polypeptide sequence is encoded by the cloning site region (see AAT72137) in vector pUCl19EHIS. It includes an E tag for detection with anti-E tag antibodies and a hexahistidine tag for IMAC purification. Human carcinoembryonic antigen (CEA) epitope sequences were cloned into the vector for preparation of purified CEA domains. These were used to examine the domain recognition of anti-CEA antibody CEA6 (see AAW19881) and TO6D11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Specific binding members for human carcinoembryonic antigen - bind to the A3-B3 extracellular domain of hCEA and are substantially non-cross-reactive with human liver cells; used for diagnosing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09-DEC-1996;
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             04-OCT-2001
                                                            Synthetic
                                                                                    diabetic neuropathy.
                                                                                                                                                                                                                                                                                                                                                                                        Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Allen DJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CAMB-) CAMBRIDGE ANTIBODY TECHNOLOGY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide
                                     WO200172771-A2
                                                                                                                                                        Insulin/insulin-like
                                                                                                                                                                                  18-JUN-2002
                                                                                                                                                                                                         AAU88438;
                                                                                                                                                                                                                                 AAU88438 standard;
                                                                                                                                                                                                                                                                                            23
                                                                                                                                                                                                                                                                                                                 GAPVPYPDPL 16
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                                                                                                                                                                                                                                                                                            GAPVPYPDPL 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7;
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                                                                                                                                                                                                                                                                                                                                                                                        43 AA;
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                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                  (first entry)
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95GB-0025004.
96GB-0010824.
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38..43
/label=
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23..34
                                                                                                                                                                                                                                 Peptide;
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                                                                                                                                                                                                                                                                                                                                                   20.4%;
                                                                                                                                                          growth
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                                                                                                                                                                                                                                                                                                                                         Score 10; DB
;; Pred. No. 0.0
0; Mismatches
                                                                                                                                                                                                                                 44
                                                                                                                                                        factor receptor-binding peptide #394
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                                                                                                                                                                                                                                                                                                                                                   DB 18;
0.0013;
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RESULT 45
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Matches 10; Conserv
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Brissette R,
Hansen PH, F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are useful for treating diabetes. Also, peptides that are useful for treating insulin-like growth factor (IGF-1) receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful is screening for compounds that bind to IR or IGF-1 receptor, potential therapeutics and research reagents. AAU88034-AAU90957 represent IR and/or IGF-1 receptor-binding peptides and related amino acid sequences
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                                                                                                                                                                                    diabetic neuropathy.
                                                                                                                                                                                                  ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IGF-1; tumour; prostate; breas diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                         AAU88447 standard; Peptide;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diabetes and tumours, comprises using insulin-like growth factor receptors
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                                                                                                                                                                                                                                            Cytostatic; antidiabetic; neuroprotective;
                                                                                                                                                                                                                                                                                                                               AAU88447;
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                                         29-MAR-2000; 2000WO-US08528
                                                                    29-MAR-2000; 2000WO-US08528
                                                                                                04-OCT-2001
                                                                                                                            WO200172771-A2
                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                     Insulin/insulin-like growth factor receptor-binding peptide #403
                                                                                                                                                                                                                                                                                                     18-JUN-2002
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20.4%; Score 10; ilarity 100.0%; Pred. No. Conservative 0; Mismatc
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J, Cheng
Hsiao K;
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0.0013;
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insulin
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(DGIB-) DGI BIOTECHNOLOGIES LLC (NOVO) NOVO NORDISK AS.

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Search completed: December Job time : 36 secs
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Best Local (
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Brissette R, Spetzler J, Cheng W,
Hansen PH, Ravera M, Hsiao K;
                                                                                                                                                                                                                                                                                                                                            of the invention.
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                                                                                                                         7 GAPVPYPDPL 16
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                                                                                                                                                                                              Conservative
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Ostergaard S,
                                                                                                                                                                                                                  DB 23; Length 44; 0.0013;
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Maximum DB seq
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US-10-298-945-2
PCT-US02-32727-6513
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US-09-724-676A-63353
US-09-724-676A-63353
US-09-724-676A-63353
US-09-724-676A-63353
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US-09-724-676-90318
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Sequence 79251, A Sequence 79244, A	Sequence 79241, A	Sequence 79251, A	Sequence 79241, A	Sequence 79256, A	Sequence 79245, A	Sequence 79256, A	Sequence 79245, A	Sequence 79252, A	Sequence 79242, A	Sequence 79252, A	Sequence 79242, A	Sequence 87328, A	Sequence 87328, A	Sequence 87327, A	Sequence 87327, A	Sequence 87329, A	Sequence 87329, A

ALIGNMENTS

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Sequence 90318, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 90318
LENGTH: 58
TYPE: PRT
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; GENERAL INFORMATION:
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SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 1

LENGTH: 100

TYPE: PRT
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Best Local Similarity 100.0%;
Matches 49; Conservative 0
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APPLICANT: MAYS, Robert W.
APPLICANT: BRUNDEN, Kurt R.
APPLICANT: BRUNDEN, Furt R.
TITLE OF INVENTION: Methods for Using Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT FILING DATE: 2002-10-29
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Pred. No. 5e-
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RESULT 3
US-09-724-676A-90318
US-09-724-676A-90318
Sequence 90318, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 90318
LENGTH: 58
LENGTH: 58
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Best Local S
Matches 13
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TITLE OF INVENTION: HUMAN FGF-23 GENE AND GENE EXPRESSION
TITLE OF INVENTION: PRODUCTS
FILE REFERENCE: Pp-17149.001/201130.409
CURRENT APPLICATION NUMBER: US/09/802,154
CURRENT FILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 46
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 21
                                                                                                                                       Sequence 2, Application US/10096246 GENERAL INFORMATION:
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APPLICANT: Itoh, Nobuyuki
APPLICANT: Kavanaugh, W.
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                APPLICANT: Nagata, Leslie
TITLE OF INVENTION: Cloning, Expression, Se
TITLE OF INVENTION: SCFV Antibody Against
FILE REFERENCE: NEL-0007
                                                              APPLICANT: The Minister of National Defence, Government of Canada APPLICANT: Fulton, R E APPLICANT: Alvi, Azhar E APPLICANT: Nagata, Leslie
CURRENT APPLICATION NUMBER: US/10/096,246
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; TYPE: PRT
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TYPE: PRT
; ORGANISM: Mouse hybridoma cell line 1A4A1
US-10-096-246-2
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NUMBER OF SEQ ID NOS:
SOFTWARE: PatentIn ve
SEQ ID NO 2
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Best Local
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           APPLICANT: Carter, Darrick
APPLICANT: Barth, Brenda
APPLICANT: Barth, Brenda
APPLICANT: Douglass, John
APPLICANT: Douglass, John
TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acne
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002.10-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: US 08/466,120 PRIOR FILLING DATE: 1995-06-06 PRIOR APPLICATION NUMBER: PCT/US94/07266 PRIOR FILLING DATE: 1994-06-24 NUMBER OF SEQ ID NOS: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/10/278,945
CURRENT FILING DATE: 2002-10-24
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NUMBER OF SEQ ID NOS:
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Local Similarity 100.0%;
les 13; Conservation
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                                                                                                                                                                                                 Zhang,
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Jen, Shyian
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Bhatia, Ajay
                                                                                                                       Jones, Robert
                                                                                                                                        Benson,
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                                                                                                                                                     Lodes, Michael
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                                                                                                                                        Darin
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100.0%; Pred. No.
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Pred. No.
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PCT-US02-32727-4591
; Sequence 4591, Application PC/TUS0232727
; GENERAL INFORMATION:
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PCT-US02-32727-30030
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; ORGANISM: Propioni acnes
PCT-US02-32727-6123
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LENGTH: 68
TYPE: PRT
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Matches 6; Conservative
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LENGTH: 56
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Best Local (
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TITLE OF INVENTION: Compositions and Methods
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
                                                                                                                                                                                        APPLICANT: Mitcham, Jennifer APPLICANT: Skeiky, Yasir
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49 PLEPRR 54
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nes 6; Conserv
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61 PLEPRR 66
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  REFERENCE:
T: Jones, Robert
T: Carter, Darrick
T: Carter, Darrick
T: Barth, Brenda
T: Douglass, John
INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes
ERENCE: 210121.514C1
                                                                                                        Wang, Siging
Jen, Shyian
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Wang, Siqing
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Bhatia, Ajay
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Barth, Brenda
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Jen, Shyian
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Bhatia, Ajay
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                                                                                             Lodes, Michael
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                                                                                 Darin
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100.0%;
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s; Pred. No. 17;
0; Mismatches
                                                                                                                                                  Francois
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5. 17;
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Query Match
Best Local Similarity
Watches 6; Conserve
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PCT-US02-32727-4591
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CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 17243
LENGTH: 161
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CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 4591
                                                                                                                                                   GENERAL INFORMATION:
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Best Local Similarity
Matches 6; Conserv
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APPLICANT: Skeiky, Yasir
APPLICANT: Persing, David
APPLICANT: Bhatia, Ajay
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TITLE OF INVENTION: Compositions and Methods
FILE REFERENCE: 210121.514C1
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Jen, Shyian
Lodes, Michael
                         Zhang, Yanni
Wang, Siqing
Jen, Shyian
Lodes, Michael
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Jones, Robert
Carter, Darrick
Barth, Brenda
Jones, Robert
            Benson, Darin
                                                                               Maisonneuve, Jean Francois
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Bhatia, Ajay
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Pred. No.
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Pred. No.
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Carter, Darrick

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RESULT 13
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Best Local Similarity
Matches 6; Conserve
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                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION NUMBER: US/10/258,662
CURRENT FILING DATE: 2002-10-25
PRIOR APPLICATION NUMBER: US 60/201,875
PRIOR FILLING DATE: 2000-05-04
PRIOR APPLICATION NUMBER: US 60/200,184
PRIOR APPLICATION NUMBER: US 60/202,090
PRIOR FILING DATE: 2000-04-28
PRIOR FILING DATE: 2000-05-04
PRIOR FILING DATE: 2000-05-04
PRIOR FILING DATE: 2000-05-06
PRIOR APPLICATION NUMBER: US 60/202,090
PRIOR APPLICATION NUMBER: US 60/202,090
PRIOR FILING DATE: 2000-05-06
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CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 14821
LENGTH: 220
                                                                                                                                                                                                                                                                                                                           SOFTWARE: PERL Program SEQ ID NO 13
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes
FILE REFERENCE: 210121.514C1
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TITLE OF INVENTION: RNA METABOLISM PROTEINS
FILE REFERENCE: PF-0771 USN
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                                                                                                                                                                                                                               NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                        ENGTH: 451
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                                                                                                                                        Local Similarity
                                                                                      6 LGAPVP 11
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                                                    LGAPVP 54
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HILLMAN, Jennifer L.
BAUGHN, Mariah R.
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AZIMZAI, Yalda
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Conservative (
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3, Y. Tom
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LENGTH: 509
; TYPE: PRT
; ORGANISM: Propionibacterium acnes
PCT-USO2-32727-29930
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; LENGTH: 474
; TYPE: PRT
; ORGANISM: Propioni acnes
PCT-US02-32727-8047
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                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: PCT/US02/32727
                                                                                                                                                                                                                              APPLICANT: Douglass, John
TITLE OF INVENTION: Compositions and Methods
FILE REFERENCE: 210121.514C1
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400 QEAYRR 405
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nes 6; Conserv
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                          39 QEAYRR 44
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Ten, Shyian
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Ten, Shylan
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Bhatia, Ajay
Maisonneuve, Je
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Zhang, Yanni
Wang, Siqing
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Barth, Brenda
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Jones, Robert
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Barth, Brenda
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Jones, Robert
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Bhatia, Ajay
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                                                       Conservative
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                                                                      Score 6; Pred. N
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PCT-US02-32727-25938 Sequence 25938, Application PC/TUS0232727 GENERAL INFORMATION:
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                                                               ; LENGTH: 600
; TYPE: PRT
; ORGANIZM: Propioni acnes
PCT-US02-32727-25938
                                                                                                                  TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes; FILE REFERENCE: 210121.514C1; CURRENT APPLICATION UNMER: PCT/US02/32727; CURRENT FILING DATE: 2002-10-11
NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 25938
ILENORUM - CO.
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PCT-US02-32727-21198
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SEQ ID NO 21198
LENGTH: 515
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Matches 6; Conserv
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis of Acnes
FILE REFERNCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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APPLICANT: Skeiky, Yasir
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   Local Similarity
les 6; Conserv
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Skeiky, Yasir
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Wang, Siqing
Jen, Shyian
Lodes, Michael
Benson, Darin
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Wang, Siqing
Jen, Shyian
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Barth, Brenda
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Bhatia, Ajay
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Bhatia, Ajay
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12.2%; Score 6; DB 1; L6
100.0%; Pred. No. 1.2e+02
tive 0; Mismatches 0
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100.0%; Pred. No.
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    Indels
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; SEQ ID NO 63353
; LENGTH: 694
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-724-676-63353
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US-09-724-676-63352
; Sequence 63352, Application US/09724676
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative splicing
                                                                                                                                                            RESULT 19
US-09-724-676A-63352
Sequence 63352, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
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Best Local Similarity
6; Conserva
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; TYPE: PRT
; ORGANISM: Homo sapiens.
US-09-724-676-63352
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US-09-724-676-63353
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; ORGANISM: Homo sapiens
US-09-724-676A-63352
                                                                  CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 63352
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CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 63352
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                                      LENGTH: 694
TYPE: PRT
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100.0%; Pred. No.
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o. 1.3e+02;
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                        Sequence 63356, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
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US-09-724-676A-63353
: Sequence 63353, Application US/09724676A
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US-09-724-676A-63356
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US-09-724-676-63356
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US-09-724-676-63356
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Best Local S
Matches 6
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APPLICANT: COMPUSED LTD

TITLE OF INVENTION: Variants of alternative splicing

FILE REFERENCE: 129181.4 Compused

CURRENT APPLICATION NUMBER: US/09/724,676A

CURRENT FILING DATE: 2000-11-28

NUMBER OF SEQ ID NOS: 97222

SOFTWARE: Patentin version 3.2

SEQ ID NO 63353

LENGTH: 694
                                                                                                                                                                                                                                                                                                                                                                               Sequence 63356, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILLING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTMARE: PatentIn version 3.2
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LENGTH: 902
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            NUMBER OF SEQ ID NOS: 97222
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| 227 LGAPVP 232
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Local Similarity 100.0%;
les 6; Conservative 0;
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Best Local Similarity
Watches 6; Conserv
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Best Local Similarity
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; ORGANISM: Homo sapiens
PCT-US02-32637-31
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Best Local Similarity 100.
The 6; Conservative
                                                                                                                                                                       NUMBER OF SEQ ID NOS: 129
SOFTWARE: Patentin version 3.1
SEQ ID NO 31
LENGTH: 934
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SEQ ID NO 31
LENGTH: 934
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APPLICANT: Grasso, Luigi
APPLICANT: Sass, Philip M.
APPLICANT: Nicolaides, Nicholas C.
APPLICANT: Nicolaides, Nicholas C.
TITLE OF INVENTION: Genetic Hypermutability of Plants for Gene Discovery and Diagn
FILE REFERENCE: AG0002US (MOR-0133)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Genetic Hypermutability of Plants FILE REFERENCE: AG0002PCT (MOR-0132) CURRENT APPLICATION NUMBER: PCT/US02/32637 CURRENT FILING DATE: 2002-10-11
                                                                                                                                                                                                                                   CURRENT FILING DATE: 2002-10-11
PRIOR APPLICATION NUMBER: 60/328,750
PRIOR FILING DATE: 2001-10-12
                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/10/270,839
CURRENT FILING DATE: 2002-10-11
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                                                                                                                                                         TYPE: PRT
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614 GAPVPY 619
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US-09-724-676A-63354
; Sequence 63354, Application US/09724676A
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative splicing
; FILE REFERENCE: 129181.4 Compugen
; CURRENT APPLICATION NUMBER: US/09/724,676A
; CURRENT FILING DATE: 2000-11-28
; NUMBER OF SEQ ID NOS: 97222
; SOFTMARE: Patentin version 3.2
; SEQ ID NO 63354
; LENGTH: 957
; TYPE: PRT
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US-09-724-676-87329
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US-09-724-676A-63354
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                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PATENTIA VERSION 3.2
SEQ ID NO 87329
LENGTH: 958
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LENGTH: 957
        Query Match 12.2%; Sometime Best Local Similarity 100.0%; Figure 10.0%; Sometime 12.2%; Someti
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
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Local Similarity 100.0%; I
nes 6; Conservative 0;
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0; Mismatches
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; Pred. No. 1.8e+02;
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Pred. No. 1.8e+02;
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DB 5; L...
No. 1.8e+02;
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                                                        US-09-724-676A-87327

Sequence 87327, Application US/09724676A

GENERAL INFORMATION:
APPLICANT: Compugen LTD

TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SEQ ID NO 87327
LENGTH: 1021
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CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 87329
SEQ ID NO 87329
LENGTH: 958
TYPE: PRT
ORGANISM: Homo sapiens
US-09-724-676A-87329
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US-09-724-676-87327
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US-09-724-676A-87329
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SOFTWARE: PatentIn version 3.2
SOFTWARE: 1031
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
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Matches 6; Conserv
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        ORGANISM: Homo sapiens
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nes 6; Conserv
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Pred. No.
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Pred. No. 1.8e+02;
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o. 1.9e+02;
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Indels

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Gaps

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Length 958;

Length 1021;

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RESULT 31
US-09-724-676-87328
US-09-724-676-87328
Sequence 87328, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION UMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
                                                                                                                                    RESULT 33
US-09-724-676-79242
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Best Local S
Matches 6
Sequence 79242, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
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APPLICANT: COMPUSED LTD
APPLICANT: COMPUSED LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compusen
CURRENT FILLING DATE: 2000-11-28
CURRENT FILLING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
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SEQ ID NO 87328
LENGTH: 1183
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SEQ ID NO 87328
LENGTH: 1183
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Best Local (
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nes 6; Conserv
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100.0%; Pr
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100.0%; Pred. No.
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NO. 2.1e+02;
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o. 2.1e+02;
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o. 1.9e+02;
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RESULT 36
US-09-724-676A-79252
US-09-724-676A-79252, Application US/09724676A
; GENERAL INFORMATION:
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SEQ ID NO 79242
LENGTH: 1484
TYPE: PRT
ORGANISM: Homo sapiens
US-09-724-676A-79242
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Best Local Similarity
"~+~hes 6; Conserve
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
COURTENDED B. DESCRIPTION STATES CONTROLLED TO THE CONTROLLE
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CUGRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79252
LENGTH: 1484
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SEQ ID NO 79242
LENGTH: 1484
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Best Local Similarity
Matches 6; Conserv
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Best Local Similarity
Matches 6; Conserv
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No. 2.6e+02;
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o. 2.6e+02;
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Compugen LTD

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; ORGANISM: Homo sapiens
US-09-724-676A-79252
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                                                                                                                          ; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-724-676-79256
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US-09-724-676-79256
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US-09-724-676-79245
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GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
                                                                                                                                                                     NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 79256
LENGTH: 1493
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SOFTWARE: PATENTIN VERSION 3.2
SEQ ID NO 79245
LENGTH: 1493
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Best Local :
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                                                           Best Local Similarity
Matches 6; Conserv
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                                                                                            Query Match
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
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CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
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                                           100.0%; Score 6; L
100.0%; Pred. No.
1tive 0; Misman
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tive 0; Mismatches
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Pred. No.
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Sequence 79241, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79241
LENGTH: 1836
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GENERAL INFORMATION:
APPLICANT: COmpugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79256
LENGTH: 1493
TYPE: PRT
                                                                              ; TYPE: PRT ; ORGANISM: Homo sapiens US-09-724-676-79241
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Best Local Similarity
""" 6; Conserve
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US-09-724-676-79241
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US-09-724-676A-79256
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US-09-724-676A-79245
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US-09-724-676A-79245
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 79245
LENGTH: 1493
TYPE: PRT
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Best Local Similarity
Matches 6; Conserv
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Best Local Similarity 100.0%; Pred. No. Matches 6; Conservative n. ...
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ELADHI 36 ||||| ELADHI 1337

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Sequence 79251, Application US/09724676A
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676A
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTMARE: PatentIn version 3.2
SEQ ID NO 79251
LENGTH: 1836
TYPE: PRT
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US-09-724-676A-79241
; Sequence 79241, Application US/09724676A
; GENERAL INFORMATION:
; APPLICANT: Compugen LTD
; TITLE OF INVENTION: Variants of alternative splicing
; FILE REFERENCE: 129181.4 Compugen
; CURRENT APPLICATION NUMBER: US/09/724,676A
; CURRENT FILING DATE: 2000-11-28
; NUMBER OF SEQ ID NOS: 97222
; NUMBER OF SEQ ID NOS: 97222
*; ORGANISM: Homo sapiens *US-09-724-676A-79251
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US-09-724-676A-79251
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US-09-724-676-79251
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APPLICANT: Compugen LTD

TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
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SEQ ID NO 79241
LENGTH: 1836
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SEQ ID NO 79251
LENGTH: 1836
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RESULT 45

US-09-724-676-79244

; Sequence 79244, Application US/09724676

; GENERAL INFORMATION:

APPLICANT: Compugen LTD

; TITLE OF INVENTION: Variants of alternative splicing

; FILE REFERENCE: 129181.4 Compugen

; CURRENT APPLICATION NUMBER: US/09/724,676

; CURRENT FILING DATE: 2000-11-28

; NUMBER OF SEQ ID NOS: 97222

; SOFTWARE: PatentIn version 3.2

; SEQ ID NO 79244

; LENGTH: 1845
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Search completed: December Job time : 15 secs
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Best Local Similarity 100.
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                                                                      SPTREMBL_21:*
1: sp_archea:*
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3: sp_fungi:*
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11: sp_ptus:*
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49
1 YLYQWLGAPVPYPDPLEPRR......DELADHIGFQEAYRRFYGPV 49
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sp_archeap:*
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sp_fungi:*
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sp_invertebrate:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

16	15	14	13	12	11	10	9	00	7	o	U	4	· Lu	٠.	, ш	Result No.
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573	523	512	467	387	317	286	275	268	97	536	205	298	170	147	34	Query Match Length DB
12	1	12	12	4	16	17	16	N	13	12	10	11	11	11	6	DB
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Q8qs15 chimpanzee	7	Q91cj5 rhesus cyto	Q918h2 baboon cyto	Q96h87 homo sapien	Q9i5c4 pseudomonas	Q9hri4 halobacteri	Q8u5k0 agrobacteri	069068 pseudomonas	Q90vw2 sparus aura		Q9xe33 oryza sativ	Q9qyf0 mus musculu	Q925s2 mus musculu	Q925s3 mus musculu	Q9tt28 canis famil	Description

RESULT 2

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O88025 streptomyce	08yjf8 brucella me	Q9vxm4 drosophila	Q9jt00 neisseria m	Q9k0x9 neisseria m	Q93hb2 streptomyce	O07473 staphylococ	Q8y1b2 ralstonia s	ralstonia	Q8yn80 anabaena sp	Q9k7x3 bacillus ha	Q9f419 mycobacteri	Q8z0s9 salmonella	N	Q47896 tolypothrix	087779 mycobacteri	Q98ic6 rhizobium 1	Q41658 vicia faba	O41032 paramecium				Q27316 drosophila	Q8rzm7 oryza sativ		_	Q88224 sin nombre	Q17301 caenorhabdi	Q8yp57 anabaena sp

ALIGNMENTS

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29 CDELADHIGFOEA 41 	Query Match 26.5%; Score 13; DB 6; Length 34; Best Local Similarity 100.0%; Pred. No. 4.8e-07; Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;	NON_TER 34 34 SEQUENCE 34 AA; 3807 MW; 3F323F8D6FDC65D8 CRC64;	SMART; SMUUU69; GLA; I. NON_TER 1 1 ·	PRINTS; PRO0002; GLABONE.	InterPro; IPR000294; VitK_dep_GLA.	InterPro; IPR002384; GLA_bone.	Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases.	"Canine Osteoblast Gene Expression.";	Weseman F. H. Moskal S. F. II .	SEQUENCE FROM N.A.	[1]		Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis,			carboxyglutamate	01-JUN-2001 (Trembirel. 17, Last sequence update)	2000 (TrEMBLrel. 13,	••	Q9TT28 PRELIMINARY; PRT; 34 AA.	OGTTOR	

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Int. J. Radiat. Biol. Relat. S
EMBL; AF240166; AAK43731.1; -.
InterPro; IPR003006; Ig_MHC.
Pfam; PF00047; ig; 1.
SEQUENCE 147 AA; 16274 MW;
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Q925S2;
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Q1-MAR-2002
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Q925S3;
        Int. .
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01-DEC-2001
                                 Cui D., Zeng G., Yan X., Li X., "Cloning of mouse genes related of the irradiated mice by treature."
                                                             STRAIN-BALB/C;
                                                                                      "Mechanism of exogenous nucleic acids and
the repair of intestinal epithelium after
world J. Gastroenterol. 6:709-717(2000).
                                                                                                                                             SEQUENCE FROM N.A. STRAIN=BALB/C;
                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                          Cui D., Zeng G., Yan X., Li X., "Cloning of mouse genes related of the irradiated mice by treat
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Mammalia; Eutheria;
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InterPro;
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                                                                       SEQUENCE FROM N.A.
                                                                                                                                  PubMed=11819679;
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the repair
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J. Radiat. Biol. Relat.
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rPro; IPR003598; Ig_c2.
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Eukaryota; Metazoa; Ch
Mammalia; Eutheria; Ro
NCBI_TaxID=10090;
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Immunoglobulin d
SEQUENCE 170 A
                                                                                              Spermatophyta; Ma
Ehrhartoideae; Or
NCBI_TaxID=4530;
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Q9QYF0;
01-MAY-2000
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01-DEC-2001
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01-NOV-1999 (TrEMBLrel. 12, Created)
01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
01-NAR-2002 (TrEMBLrel. 20, Last annotation update)
Similar to sequence of BAC F7G19 from Arabidopsis thaliana.
Oryza sativa (Rice)
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EMBL;
HSSP;
STRAIN=CV. NIPPONBARE;
Sasaki T., Matsumoto T.,
"Oryza sativa nipponbare(
clone:P0026F07.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-BALB/C; TISSUE-SPLEEN;
MEDLINE-20183931; PubMed-10706631;
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Pfam; PF00047; ig; 1
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Spermatophyta; Magnoliophyta; Liliopsida;
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AA; 17978 MW;
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BAA88633.1;
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01-JAN-1998
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       Osteocalcin.
Sparus aurata (Gilthead sea bream).
Sparus aurata (Gilthead sea bream).
Eukaryota; Metazoa; Chordata; Craniata;
Actinopterygil; Neopterygil; Teleostei;
Acanthomorpha; Acanthopterygil; Percomor
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Q90VW2;
01-DEC-2001 (TrEMBLrel. 19,
01-DEC-2001 (TrEMBLrel. 19,
01-MAR-2002 (TrEMBLrel. 20,
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Submitted (OCT-1997) to th
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Telford E.A., Watson M.S., Perry J., Cullinane
"The DNA sequence of equine herpesvirus-4.";
J. Gen. Virol. 79:1197-1203(1998).
                                                                                                                                                                                                                                           Zinc-finger.
SEQUENCE 536
                                                                                                                                                                                                                                                                                                                                                           STRAIN-NS80567;
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InterPro; IPR00485; P_rich_extensn.
PRINTS; PR01217; PRICHEXTENSN.
SEQUENCE 205 AA; 21909 MW; F747D.
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                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; dsDNA viruses, no RNA stage;
Alphaherpesvirinae; Varicellovirus.
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                                                                                                                                                                                                                                                              PROSITE; PS00518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Equine herpesvirus
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8; Conserv
  Sparus.
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(TrEMBLrel. 05, Last s
(TrEMBLrel. 21, Last a
of HSV-1 gene RL2 and
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                                                                                                                                                                                                                                           59686 MW;
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b; Pred. No. 1.6
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L2 and VZV gene 61.
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          Percomorpha;
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                    Vertebrata; Euteleostomi;
Euteleostei; Neoteleostei
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61.
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          Percoidei;
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Best Local S
Matches 7
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"Cloning of the bone Gla protein gene from the aurata. Evidence for overall conservation in bone-specific expression from fish to man.";
Gene 270:77-91(2001).
EMBL; AF289506; AAK65658.1; --
EMBL; AF289506; AAK6579.1; --
EMBL; AF289506; AAK65679.1; --
EMBL; AF289506) AAK665689.1; --
EMBL; AF289506) AAK665689.1; --
EMBL; AF289506) AAK665689.1; --
EMBL; AF289506] AAK665699.1; --
EMBL; AF289506] AAK665699.1; --
EMBL; AF289506] AAK665699.1; --
EMBL; AF289506] AAK665699.1; 
                                                                        Q8U5KO;
01-JUN-2002
01-JUN-2002
01-JUN-2002
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NON_TER
SEQUENCE
                                     AGR_C_880
                                                        AGR_C_880p.
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Agrobacterium tumefaciens
Bacteria; Proteobacteria;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=99008986; PubMed=9791102; Metcalf W.W., Wolfe R.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pseudomonas stutzeri (Pseudomonas perfectomarina).
Bacteria; Proteobacteria; gamma subdivision; Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    069068;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           olecular genetic analysis of phosphite and Pseudomonas stutteri WM88.";
Bacteriol. 180:5547-5558(1998).
- FUNCTION: BELONGS TO AN OPERON INVOLVED I
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2 (TrEMBLrel.
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10434 MW; B95608824FDFEECB
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21,
(strain C58 / ATCC alpha subdivision;
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Pred. No
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Rhizobiaceae group;
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Q9HRI4;
Q9HRI4;
Q1-MAR-2001 (TIEMBLIEL 16, C
Q1-MAR-2002 (TIEMBLIEL 20, L
Q1-MAR-2002 (TIEMBLIEL 20, L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.

MEDLINE=20504483; PubMed=11016950;

Ng W.V., Kennedy S.P., Mahairas G.G., Berquist B., Pan M.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorsson V., Sbrogna J.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorsson V., Sbrogna J.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorsson V., Sbrogna J.,

Shukla H.D., Lasky S.R., Baliga N.S., Thorsson V., Goo Y.A.,

Leithauser B., Keller K., Cruz R., Danson M.J., Hough D.W.,

Maddocks D.G., Jablonski P.E., Krebs M.P., Angevine C.M., Dale H.,

Isenbarger T.A., Peck R.F., Pohlschroder M., Spudich J.L., Jung K.-H.,

Isenbarger T.A., Peck R.F., Pohlschroder M., Spudich J.L., Jung K.-H.,

Alam M., Freitas T., Hou S., Daniels C.J., Dennis P.P., Omer A.D.,

Behardt H., Lowe T.M., Liang P., Riley M., Hood L., DasSarma S.;

"Genome sequence of Halobacterium species NRC-1.",

Proc. Natl. Acad. Sci. U.S.A. 97:12176-12181(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Goodner B., Hinkle G., Gattung S., Miller N., Blanchard M., Qurollo B., Goldman B.S., Cao Y., Askenazi M., Halling C., Mullin L., Houmiel K., Gordon J., Vaudin M., Iartchook O., Epp A., Liu F., Wollam C., Allinger M., Doughty D., Scott C., Lappas C., Markelz B., Flanagan C., Crowell C., Gurson J., Lomo C., Sear C., Strub G., Cielo C., Slater S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Genome sequence of the plant pathogen and biotechnology agent Agrobacterium tumefaciens C58."; Science 294:2323-2328(2001). EMBL; AE007985; AAK86310.1; -.
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NCBI_TaxID=176299;
     Q915C4
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Halobacteriaceae; Halobacterium
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InterPro; IPRO00205; NAD_binding
Pfam; PRO0725; 3HCDH; 1.
Pfam; PF02737; 3HCDH_N; 1.
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                                                                                                                                                                                    ELADHIG 37
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                                                                                                                                                                                                                                                                                                                                              30687 MW;
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Last annotation updat
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Pred. No
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                                                                                                                                                                                                                                                             Score 7;
Pred. No
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     PRT;
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                                                                                                                                                                                                                                                                                                                                              880F72A7D3AB2342 CRC64;
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5. 12;
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Best Local
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Q96H87;
Q96H87;
Q96H87;
Q1-DEC-2001 (TrEMBLrel. 19, Created)
Q1-DEC-2001 (TrEMBLrel. 19, Last sequence update)
Q1-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Unknown (protein for MGC:10474).
Unknown (Protein for MGC:10474).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stover C.K., Pham X.-Q.T., Erwin A.L., Mizoguchi S.D., Warren Hickey M.J., Brinkman F.S.L., Hufnagle W.O., Kowalik D.J., La Garber R.L., Goltry L., Tolentino E., Westbrock-Wadman S., Yu Brody L.L., Coulter S.N., Folger K.R., Kas A., Larbig K., Lin Smith K.A., Spencer D.H., Wong G.K.-S., Wu Z., Paulsen I.T., Reizer J., Saler M.H., Hancock R.E.W., Lory S., Olson M.V.; "Complete genome sequence of Pseudomonas aeruginosa PAO1, an opportunistic pathogen."; Nature 406:959-964(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0915c4;
01-MAR-2001 (TrEMBLrel. 16, Created)
01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
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InterPro; IPR000847; HTH_Lysr.
InterPro; IPR0005119; Lysr_subst.
Pfam; PF00126; HTH_L; 1.
Pfam; PF03466; Lysr_substrate; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A. STRAIN=ATCC 15692 / MEDLINE=20437337; P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRINTS; PR00039; HTHLYSR.

PROSITE; PS00044; HTH_LYSR_FAMILY; UNKNOWN_1.

DNA-binding; Transcription regulation; Complete proteome.

SEQUENCE 317 AA; 35990 MW; CC73FDB4A3473960 CRC64;
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                                                                                                                                                                        Strausberg R.;
                                                                                                                                                                                     FISSUE=PLACENTA;
                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                       NCBI_TaxID=9606;
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                                                                                                                                                                                                                                                                                                                                                                                                                     4 QWLGAPV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                             7; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
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PubMed=10984043;
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100.0%; Pred. No.
                                                                                                                                                 the EMBL/GenBank/DDBJ databases N: NUCLEAR (BY SIMILARITY).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 16;
5. 13;
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k-Wadman S., Yuan Y.,
Larbig K., Lim R.M.,
                                                                                                                                       RECEPTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 317
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D.J., Lagrou M
n S., Yuan Y.,
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RESULT

Q91CUT

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Q1812
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Best Local S
Matches 7
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01-DEC-2001
01-DEC-2001
01-JUN-2002
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01-DEC-2001
01-MAR-2002
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Q918H2;
                                                                                                                 Blewett E.L., Preston R.P., Kravitz R., Barry P.;
"The UL82 gene familles of babbon (babbon cytomegalovirus) and rhesus
cytomegalovirus (RhCMV) each contain 4 genes and are closely related
to the UL82 family (3 genes) of HCMV.";
Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (rhesus cytomegalovirus) each contain 4 genes and are closely related to the UL82 family (3 genes) of human cytomegalovirus."; submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases. EMBL; AF411694; AAL10297.1; -. InterPro; IPR000637; AT_hook.
                                                                                                                                                                                                                                                                                                                                                           Viruses; dsDNA viruses,
Betaherpesvirinae; Cyto
NCBI_TaxID=103930;
                                                                                                                                                                                                                                                                                                                                                                                           Rhesus cytomegalovirus (strain 68-1)
Viruses; dsDNA viruses, no RNA stage;
Betaherpesvirinae; Cytomegalovirus.
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NCBI_TaxID=120505;
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                                  STRAIN-68-1;
                                                               SEQUENCE FROM
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R.H.,
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                                                            N.A.
   Barry P.A.;
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19,
20,
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Pred. No
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D. 18;
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01-JUN-2002
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01-DEC-2001 (TERMBLrel. 19, Last sequence update)
01-JUN-2002 (TERMBLrel. 21, Last annotation update)
Hypothetical 57.3 kDa protein.
AW743111.
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Q8QS15;
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pathogenesis.";
pathogenesis.";
submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases
EMBL; AF078698; AAL08223.1;
EMBL; AF078698; AAL08223.1;
EF18BA8354A39656 CRC64;
SEQUENCE 512 AA; 57341 MW; EF18BA8354A39656 CRC64;
                                                         Davison A.J., Akter P., Dolan A., Wright K.M., Alcendor D.J., Hayward G.S., McGeoch D.J.; "The human cytomegalovirus genome revisited."; Submitted (FEB-2002) to the EMBL/GenBank/DDBJ EMBL; AF480884; AAM00723.1; -. SEQUENCE 573 AA; 63004 MW; B56C2AD35F76D02
                                                                                                                                                                                                                                                                                                                                                                                   Submitted (NOV-2001) to the EMBL; BC017129; AAH17129.1; MGD; MGI:2144585; AW743111
                                                                                                                                                           chimpanzee cytomegalovirus.
Viruses; dsDNA viruses, no
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Strausberg R.;
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Mammalia; Eutheria;
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|||||||
367 YRRFYGP 373
                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                        NCBI_TaxID=188763;
                                                                                                                                                   Betaherpesvirinae;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus (Mouse).
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Cytomegalovirus.
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Rodentia;
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Sciurognathi;
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19;
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thi; Muridae; Murinae; Mus
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RESULT 18
Q17301
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Q8YP57
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A Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,

A Kaneko T., Iriguchi M., Ishikawa A., Kawashima K., Kimura T.,

A Kishida Y., Kohara M., Matsunoto M., Matsuno A., Muraki A.,

A Nakazaki N., Shimpo S., Sugimoto M., Takazawa M., Yamada M.,

Yasuda M., Tabata S.;

"Complete genomic sequence of the filamentous nitrogen-fixing

"Cyanobacterium Anabaena sp. strain PCC 7120.";

DNA Res. 8:205-213(2001).

REMBL; AP003596; BAB76042.1; ...

RINTETPTO; IPR000901; CPSASE.

RINTETPTO; IPR000901; CPSASE.

RINTETPTO; IPR000901; CPSASE.

REMSTRE: PS00867; CPSASE_2; UNKNOWN_1.

REMSTRE: PS00867; CPSASE_2; UNKNOWN_1.

REMSTRE: PS00867; CPSASE_2; UNKNOWN_1.
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Q17301;
       InterPro;
InterPro;
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01-NOV-1996 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
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01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
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                                                                                                                                                                                                           STRAIN-GUJARAT G16; Waterston R.;
                                                                                                                                                                                                                                                                                                           Wu X, Le TT.;
"The sequence of C. briggsae cosmid G01D9.";
Submitted (MAY-1996) to the EMBL/GenBank/DDB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Anabaena sp. (strain PCC 7120).
Bacteria; Cyanobacteria; Nostocales;
NCBI_TaxID=103690;
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                                                                                                        EMBL; U56248; AAA98699.1; HSSP; P14687; 1AMU.
                                                                                                                                                         "The C. briggsae Genome Sequencing Project."; Submitted (APR-1996) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                  STRAIN-GUJARAT G16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rhabditidae; Peloderinae; NCBI_TaxID=6238;
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Eukaryota; Metazoa; Nematoda; Chromadorea;
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IPR001227; Ac_transferase.
IPR000873; AMP-bind.
IPR001242; Condensatn.
IPR000794; Ketoacy1-synt.
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n PCC 7120.";
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InterPro; IPR00380; Ppantne_attach.
InterPro; IPR00380; Ppantne_attach.
InterPro; IPR00379; Ser_estrs_site.
InterPro; IPR000130; Zn_MTpeptdse.
InterPro; IPR00608; Acp_binding; 1.
InterPro; IPR00109; Ketoacyl-synt; 2.
InterPro; IPR00109; Ketoacyl-synt; 2.
InterPro; IPR00109; Ketoacyl-synt; 2.
InterPro; IPR00109; Ketoacyl-synt; 2.
IPR00109; IPR001
                                                 082160 PRELIMINARY; PRT; 56 AA. 082160; Q82161; O1-NOV-1996 (TrEMBLrel. 01, Created) 01-NOV-1996 (TrEMBLrel. 01, Last sequence update) 01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
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   Nucleocapsid protein (Fragment). unidentified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Viruses; ssRNA negative-strand viruses; NCBI_TaxID=37705;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
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EMBL; U33259; AAC36797.1; -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=NV WA-R199;
MEDLINE=96036486; PubMed=7483255;
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o. 35;
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5. 1.4e+02;
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Nichol S.T.;
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     Q8RZM7;
Q8RZM7;
01-JUN-2002
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01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                 SWART; SM00069; GLA; 1.
SPROSITE; PS00011; GLU_CARBOXYLATION; 1.
SEQUENCE 95 AA; 10445 MW; 25C4B3AA8B51909E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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"Naturally occurring Sin Nombre virus Virology 214:602-610(1995).
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InterPro; IPR000294; VitK_dep_GLA
Pfam; PF00594; 91a; 1.
PRINTS; PR00002; GLABONE.
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Pfam; PF00846; Hanta_nucleocap; 1.
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23 ELADHI
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6; Conservative
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56
56 AA;
     (TrEMBLrel. (TrEMBLrel.
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                                                                                                            PRELIMINARY;
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56
6107 MW;
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Sciurognathi; Muridae;
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5. 56;
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35;
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; Murinae; Mus
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Matches 6
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Best Local S
Matches 6
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Submitted (AUG-1995) to the EMBL/C
EMBL; U24095; AAA65109.1; -
EMBL; U23836; AAA74176.1; -
EMBL; U23836; AAA74176.1; -
EMBL; U23836; AEA74176.1; -
EMBL; U23836; AE
     Q9VUS3;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc:
Ephydroidea; Drosophilidae; Drosophila.
NCBI_TaxID-7227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Oryza sativa (japonica cultivar-group) genomic DNA, chr clone: B1168H06.";
Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AP003563; BABB9169.1; - 257199E32438B5E6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oryza sativa (japonica cultivar-group).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
NCBI_TaxID-39947;
                                                                                                            Q9VUS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN-OREGON-R; T
Wright L.G., Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B1168H06.7 protein. B1168H06.7.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Submitted (APR-1995)
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                                                                                                                                                                                                                                      24 DCDELA
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                                                                                                                                                                                                                                                                                                                                  6; Conserv
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                                                                                                         PRELIMINARY;
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n T., Thummel C.S., Guild
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  Created)
Last sequence update)
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EMBL/GenBank/DDBJ
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Last annotation updat
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update)

Muscomorpha;

0;

Indels 99

0

Gaps

0;

Length

BAC

databases

0,

Indels

0;

Gaps

0

Length 100;

CRC64;

databases

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RESULT
Q9G0H7
ID Q9
AC Q9
DT 01
DT 01
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DT 01
DT 01
DT GF
OS RC
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RA Adams N.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams N.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Amanatides P.G., Scherer S.E., Li P.W., Hoskins R.A., Galle R.F.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfelfer B.D.,
RA Abril J.F., Agbayari A., An H.-J., Andrews-Pfankoch C.R., Miklos G.L.G.,
RA Abril J.F., Agbayari A., An H.-J., Andrews-Pfankoch C.R., Miklos G.L.G.,
RA Ballew R.M., Basu A., Baxendale J., Baysaktaroglu L., Beasley E.M.,
RA Becson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Becson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.R.,
RA Gerya D., Botchan M.R., Bouck J., Brokstein P., Brottler P.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Ge Pablos B., Delcher A., Deng Z., Mays A.D., Dew I., Dietz S.M.,
Dodson K., Doup L.E., Downes M., Dugan-Rocha S., Dunkov B.C., Dunn P.,
RA Durbin K.J., Evangelista C.C., Ferriera S., Fleischmann W.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
RA Merkulov G., Milshana N.V., Mobarry C., Morris J., Noshrefi A.,
RA Merkulov G., Milshana N.V., Mobarry C., Morris J., Noshrefi A.,
RA Merkulov G., Milshana N.V., Mobarry C., Morris J., Shen H.,
RA Roinert K., Remington K., Saunders R.D.C., Scheeler F., Shen H.,
RA Menn E., Spradling A.C., Stapleton M., Strong R., Sun E.,
RA Harris R., Nossaman D.A., Weinstock G.M., Reissenbach J.,
RA Harris R., Pertor C., Turner R., Venter E., Wang A.H., Wang X.,
Ra Hardy Y., Law S., Pollard J., Purl V., Reese M.G.,
Ra Hardy R., Shen H., Shong T., Zhong W., Zhang G., Zhan Q.A.,
Ra Hardy R., Shen H., Shen H.,
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Best Local S
Matches 6
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01-MAR-2001
01-DEC-2001
                  Gp8
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STRAIN-BERKELEY;
MEDLINE-20196006; PubMed=10731132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster (Fruit fly).
Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
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EIG71EA OR CG16931
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Roseophage
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                                (TrEMBLrel.
                                                (TrEMBLrel.
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                                                                                                      PRELIMINARY;
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227:
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100.0%; F1
                                                                                                                                                                                                                                                                                                                                    11867 MW;
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16,
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                              Created)
Last sequence update)
Last annotation update)
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RESULT
041032
ID 04
AC 04
DT 01
DT 01
DT 01
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P90849
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Best Local
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Rohwer F.L., Segall A.M., Stewa Wolven F., Azam F.;

Submitted (SEP-1999) to the EMB EMBL; AF189021; AAG02591.1; -

SEQUENCE 103 AA; 11521 MW;
041032
041032;
01-JAN-1998
01-JAN-1998
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                      01-MAY-1997
01-MAY-1997
01-DEC-2001
                                                                                                                                                                                                                                                                                                                         Caenorhabditis elegans.
Eukaryota; Metazoa; Nematoda;
Rhabditidae; Peloderinae; Caen
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"The complete genomic sequence of the
                                                                                                                                                                SEQUENCE
                                                                                                                                                                       Pfam; PF01215; COX ProDom; PD007270;
                                                                                                                                                                                                   EMBL; Z81070; CAB03002.1;
                                                                                                                                                                                                           investigating biology."
Science 282:2012-2018(19
                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. MEDLINE=99069613;
                                                                                                                                                                                                                                                                                     Lightning
                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                NCBI_TaxID=6239;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shares homology with nonmarine
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=136084;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Viruses; dsDNA viruses, T7-like viruses.
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                                                                                                                                                                                          InterPro; IPR002124; COX5B.
                                                                                                                                                                                                                               'Genome sequence of the nematode C.elegans: A platform
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                                                                                                12 YPDPLE
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                                                                                     YPDPLE
                                                                                                                          6; Conserv
                                                                                                                                                                                                                                                                                                                                                            protein.
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7 (TrEMBLrel.
1 (TrEMBLrel.
(TrEMBLrel.) (TrEMBLrel. (TrEMBLrel.)
                                                                                                                                                                132 AA;
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                                                                                                       17
                                                                                                                           Conservative
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                                       PRELIMINARY;
                                                                                                                                                                                  COX5B;
                                                                                                                                                              OX5B; 1.
; COX5B; 1.
A; 14733 MW;
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                                                                                                                                                                                                                                                   PubMed=9851916
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                                                                                                                                   12.2%;
100.0%;
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100.0%;
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19,
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 19,
                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                         oda; Chromadorea; Rhabditida; Rhabditoidea; Caenorhabditis.
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Created)
Last sequence update)
Last annotation update)
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[2]
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Kaiser A., Vollmert M., Tholl D., Graves M.V., Gurnon J.R.,
Lisec A.D., Nickerson K.W., Van Etten J.L.;
"Chlorella virus PBCV-1 encodes a functional homospermidine
synthase.";
                                                                                                                                                                                SEQUENCE
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Submitted (DEC-2000) to the
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Viruses; dsDNA viruses, no RNA stage;
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                01-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Hypothetical 18.1 kDa protein (Fragment).
Mycobacterium paratuberculosis.
Bacteria; Firmicutes; Actinobacteria; Actinobacteridae;
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MEDLINE-21082930; PubMed-11214968;
MEDLINE-21082930; PubMed-11214968;
Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasamo Matanabe A., Idesawa K., Ishikawa A., Kawashima K., Kimura T. Kishida Y., Kiyokawa C., Kohara M., Matsunoto M., Matsuno A. Mochizuki Y., Nakayama S., Nakazaki N., Shimpo S., Sujimoto Takeuchi C., Yamada M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           with two point mutations located Plant Sci. 129:203-212(1997).
EMBL; L36945; AAB97304.1; -.
Mitochondrion; Ubiquinone.
SEQUENCE 143 AA; 15455 MW; 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mesorhizobium loti.";
DNA Res. 7:331-338(2000).
EMBL; AP002999; BAB49590.1;
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01-OCT-2001 (TREMBLrel. 18, L
01-MAR-2002 (TREMBLrel. 20, L
Hypothetical protein m112465.
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Scheepers D.G.J.M., Luo H.,
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Phyllobacteriaceae; Mesorh
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01-NOV-1996
01-NOV-1996
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ORF 169.
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"Cloning and nucleotide sequence of cyanobacterium Calothrix PCC 7601.";
Mol. Microbiol. 1:45-52(1987).
EMBL; Y00522; CAA68577.1; -.
  Putative fimbrial STHD OR STM4592. Salmonella typhimu
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Bacteria; Cyanobacteria;
NCBI_TaxID=1188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Specificity of the 34-kilodalton Immunodominant protein Mycobacteium avium subsp. paratuberculosis."; Clin. Diagn. Lab. Immunol. 6:146-148(1999). EMBL; X68102; CAA48222.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
STRAIN-ATCC 19698;
MEDLINE-99159670; PubMed-10068253;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gilot P., De Kesel M., Coene M., Machtelinckx L., "Isolation and sequencing of the gene coding for kilodalton protein of Mycobacterium paratuberculo:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE=88260883;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hypothetical
NON_TER :
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MEDLINE-93328703;
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| 123 DELADH
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Local
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                                                        2 (TrEMBLrel. 20,
2 (TrEMBLrel. 20,
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imbrial subunit.
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01-JUN-2002
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Parkhill J., Dougan G., James K.D., Thomson N.R., Pickard D., Wain Churcher C., Mungall K.L., Bentley S.D., Holden M.T.G., Sebaihia M. Baker S., Basham D., Brooks K., Chillingworth T., Connerton P., Cronin A., Davis P., Davies R.M., Dowd L., White N., Farrar J., Feltwell T., Hamlin N., Haque A., Hien T.T., Holroyd S., Jagels K. Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Parry C.,
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STRAIN=LT2 / SGSC1412 / ATCC 700720;
MEDLINE=21534948; PubMed=11677609;
                                                                                                                                                                                                                                                                                                                                                                                               whitehead S., Barrell B.G.; "Complete genome sequence of a enterica serovar Typhi CT18."; Nature 413:848-852(2001)
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SEQUENCE 18
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                                                                                                                                                                                                                                                                                                            Pfam;
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InterPro; IPR000259; Fimbrial.
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EMBL; AE008916; AAL23407.1; -.
InterPro; IPR000259; Fimbrial.
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., Hou S., Layman D.
l N., Mulvaney E.,
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01-MAR-2001 (TrEMBLrel. 16,
01-MAR-2001 (TrEMBLrel. 16,
01-DEC-2001 (TrEMBLrel. 19,
                                                                                                                                                                                                                                                                                                                                                         STRAIN-C-125 / JCM 9153;
MEDLINE-20512582; PubMed-11058132;
Takami H., Nakasone K., Takaki Y., Maeno G., Sa
Fuji F., Hirama C., Nakamura Y., Ogasawara N.,
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Pfam; PF00440; tetR; 1.
PRINTS; PR00455; HTHTETR.
DNA-Dinding; Transcription regulation.
DNA-Dinding; Transcription regulation.
SEQUENCE 198 AA; 21553 MW; 06786AEE1165F302 CRC64;
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                                                                                                                                                                                                                                                             halodurans and genomic sequence comparison Nucleic Acids Res. 28:4317-4331(2000).
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Bacteria; Firmicutes; Bacillus/Clostridium group; Bacillales;
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ACUA OR BH3235.
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MEDLINE=20431891; PubMed=10974106;
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NCBI_TaxID=1770;
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MEDLINE=21595285; PubMed=11759840;

KANDEKO T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,

R Kaneko T., Nakamura Y., Wolk C.P., Kuritz T., Sasamoto S.,

A Kishida Y., Kohara M., Ishikawa A., Kawashima K., Kimura T.,

A Kishida Y., Kohara M., Matsumoto M., Matsuno A., Muraki A.,

A Nakazaki N., Shimpo S., Sugimoto M., Takazawa M., Yamada M.,

Yasuda M., Tabata S.;

"Complete genomic sequence of the filamentous nitrogen-fixing

"R INDER SEQUENCE 11 Sequence of the filamentous nitrogen-fixing

"R INDER SEQUENCE 12 Sequence of the filamentous nitrogen-fixing

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01-MAR-2002
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Salanoubat M., Genin S., Artiguenave F., Gouzy J., Mangenot S.
Arlat M., Billault A., Brottier P., Camus J.C., Cattolico L.,
Arlat M., Billault A., Brottier P., Camus J.C., Cunnac S., Demange
Chandler M., Choisne N., Claudel-Renard C., Cunnac S., Demange
Gaspin C., Lavie M., Moisan A., Robert C., Saurin W., Schiex T
Siguler P., Thebault P., Whalen M., Wincker P., Levy M.,
Weissenbach J., Boucher C.A.;
"Genome sequence of the plant pathogen Ralstonia solanacearum.
Nature 415:497-502(2002).
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01-MAR-2002 (TrEMBLrel. 20, Last sec
01-JUN-2002 (TrEMBLrel. 21, Last and
Probable riboflavin synthase (Alpha
RIBE OR RSC0714 OR RS05139.
                                                 EMBL; AL646060; CAD14244.1; -.
InterPro; IPR001783; Lum_binding, pfam; PF00677; Lum_binding; 2.
ProDom; PD004110; Lum_binding; 1.
TIGREAMS; TIGR00187; ribE; 1.
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                                                                                                                                 STRAIN-TUE3928;
STRAIN-TUE3928;
MEDLINE-89306540; PubMed-2765032;
MEDLINE-89306540; PubMed-2765032;
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Bacteria; Firmicutes; Baci
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Hypothetical protein RSc0778.
RSC0778 OR RS05076.
                                                                                   Schnell N., Entlan K.D., Gotz F., Horner T., Kellne "Structural gene isolation and prepetide sequence new lanthionine containing antibiotic."; FEMS Microbiol. Lett. 49:263-267(1989).
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                                  Bacteria; Proteobacteria;
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                                    Neisseria.
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RESULT 43
Q9VXM4
ID Q9VXM
AC Q9VXM
DT 01-MA
DT 01-MA
DT 01-MA
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09JT00;

01-0CT-2000 (Tree

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FTSQ OR NMA2059:
 Q9VXM4;
Q9VXM4;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                              STRAIN=22491 / SEROGROUP A / SEROTYPE 4A;

MEDLINE=20222556; PubMed=10761919;

Parkhill J. Achtman M., James K.D., Bentley S.D., Churcher C.,

Klee S.R., Morelli G., Basham D., Brown D., Chillingworth T.,

Davies R.M., Davis P., Devlin K., Feltwell T., Hamlin N., Holroyd

Jagels K., Leather S., Moule S., Mungall K., Quail M.A.,

Rajandream M.A., Rutherford K.M., Simmonds M., Skelton J.,

Whitehead S., Spratt B.G., Barrell B.G.;

"Complete DNA sequence of a serogroup A strain of Neisseria

meningitidis 22491.";

Nature 404.502-506(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tettelin H., Saunders N.J., Heidelberg J., Jeffries A.C., Nelson Elsen J.A., Ketchum K.A., Hood D.W., Peden J.F., Dodson R.J., Nelson W.C., Gwinn M.L., DeBoy R., Peterson J.D., Hickey E.K., Haft D.H., Salzberg S.L., White O., Fleischmann R.D., Dougherty B. Mason T., Ciecko A., Parksey D.S., Blair E., Cittone H., Clark E., Cotton M.D., Utterback T.R., Khouri H., Qin H., Vamathevan J., Gill J., Scarlato V., Masignani V., Pizza M., Grandi G., Sun L., Smith H.O., Fraser C.M., Moxon E.R., Rappuoli R., Venter J.C.; "Complete genome sequence of Neisseria meningitidis serogroup B s
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Neisseria meningitidis (serogroup A).
Bacteria; Proteobacteria; beta subdivision; Neisseriaceae; Neisseria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MC58.",
Science 287:1809-1815(2000).
EMBL; AE002398; AAF40863.1; -.
TIGR; NMB0425; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-MC58 / SEROGROUP B;
MEDLINE-20175755; PubMed-10710307;
                                                                                                                                                                                                                                      Complete proteome.
                                                                                                                                                                                                                                                     EMBL; AL162758; CAB85277.1;
                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=65699;
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Local
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100.0%; Pred. No. 1.3e+02;
Live 0; Mismatches 0;
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b; Pred. No. 1.2
0; Mismatches
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Last sequence update)
Last annotation update)
Created)
Last sequence update)
Last annotation update)
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RX MEDLINE-20196006; PubMed-10731132;
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Holt R.A., Evans C.A., Gocayne J.D.,
RA Adams M.D., Celniker S.E., Holt R.A., Hoskins R.A., Galle R.F.,
RA Adams M.D., Celniker S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA George R.A., Lewis S.E., Richards S., Ashburner M., Henderson S.N.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfelffer B.D.,
RA Brandon R.C., Rogers Y.-H.C., Blazej R.G., Champe M., Pfelffer B.D.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Wan K.H., Doyle C., Baxter E.G., Helt G., Nelson C.R., Miklos G.L.G.,
RA Abril J.F., Agbayani A., An H.-J., Andrews-Pfannkoch C., Baldwin D.,
RA Ballew R.M., Basu A., Baxendale J., Brokstein P., Beldwin D.,
RA Besson K.Y., Benos P.V., Berman B.P., Bhandari D., Bolshakov S.,
RA Burtis K.C., Busam D.A., Butler H., Cadieu E., Center A., Chandra I.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Cawley S., Dahlke C., Davenport L.B., Davies P.,
RA Gebry J.M., Saphila A.E., Garg N.S., Gelbart W.M., Glasser K.,
RA Glodek A., Gong F., Gorrell J.H., Gu Z., Guan P., Harris M.,
RA Harris N.L., Harvey D., Heiman T.J., Hernandez J.R., Houck J.,
RA Harris N.L., Harvey D., Heiman T.J., Wei M.-H., Ibeywam C.,
RA Kimmel B.E., Kodira C.D., Kraft C., Kravitz S., Kulp D., Lai Z.,
Lin X.,
RA Merkulov G., Milshi F., Karpen G.H., Ke Z., Kennison J.A., Ketchum K.A.,
RA Mount S.M., Welson K.A., Nixon K., Nusskern D.R., Pacleb J.M.,
RA Fall
                                                                       Query Match
Best Local
                                                    Matches
                                                                                                                                                            Stapleton M., Brokstein P., Hong L., Agbayani A., Carlson J., Champe M., Chavez C., Dorsett V., Farfan D., Frise E., George Gonzalez M., Guarin H., Li P., Liao G., Miranda A., Mungall C., Nunco J., Pacleb J., Paragas V., Park S., Phouanenavong S., Wa Yu C., Lewis S.E., Rubin G.M., Celniker S.; Submitted (CCT-201) to the EMBL/GenBank/DDBJ databases.

EMBL; AE003500; AAF48534.1; -.
EMBL; AY061163; AAL28711.1; -.
EMBL; AY061163; AAL28711.1; -.
FlyBase; FBgn0030703; CG9066.
InterPro; IPR001199; Cyt_B5.
InterPro; IPR001199; Cyt_B5.
Ffam; PF00173; heme_1; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shue B.C., Siden-Kiamos I., Simpson M., Skupski M.P., Smith T., Spier E., Spradling A.C., Stapleton M., Strong R., Sun E., Svirskas R., Tector C., Turner R., Venter E., Wang A.H., Wang X., Wang Z.-Y., Wassarman D.A., Weinstock G.M., Weissenbach J., Williams S.M., Woodage T., Worley K.C., Wu D., Yang S., Yao Q.A., Ye J., Yeh R.-F., Zaveri J.S., Zhan M., Zhang G., Zhao Q., Zheng L., Zheng X.H., Zhong F.N., Zhong W., Zhou X., Zhu S., Zhu X., Smith H.O., Gibbs R.A., Myers E.W., Rubin G.M., Venter J.C.; "The genome sequence of Drosophila melanogaster."; Science 287:2185-2195(2000).
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Eukaryota; Metazoa; Arthropoda; Tracheata; Hexapoda; Insecta;
Pterygota; Neoptera; Endopterygota; Diptera; Brachycera; Musc
Ephydroidea; Drosophilidae; Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
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                                                                                                                                               SEQUENCE
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    43
    RRFYGP
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                                                    Similarity 6; Conser
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    48
                                                    Conservative
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                                                                                                                                             27921 MW;
                                                                       12.2%;
                                                 0; Mismatches
                                                                                                                                             1A7B9CC7BDE72FA3 CRC64;
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No. 1.3e+02;
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Q8YJF8
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STRAIN-16M-/ ATCC 23456 / BIOTYPE 1;

MEDLINE-20020109; PubMed-11756688;

MEDLINE-20020109; PubMed-11756688;

DelVecchio V.G., Kapatral V., Redkar R.J.; Patra G., Mujer C., Los T.,

IVanova N., Anderson I., Bhattacharyya A., Lykidis A., Reznik G.,

IVanova N., Anderson I., Bhattacharyya A., Lykidis A., Reznik G.,

Jablonski L., Larsen N., D'Souza M., Bernal A., Mazur M., Goltsman E.,

Selkov E., Elzer P.H., Hagius S., O'Callaghan D., Letesson J.-J.,

Haselkorn R., Kyrpides N., Overbeek R.;

"Mh. ~~~~~~ servence of the facultative intracellular pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8YJF8
Q8YJF8;
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088025; O1-NOV-1998 (TrEMBLrel. 08, Created)
01-NOV-1998 (TrEMBLrel. 08, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Putative transcriptional regulator.
SCO6669 OR SC5A7.19C.
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01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Acetyltransferase (EC 2.3.1.-).
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Bacteria; Proteobacteria;
Brucellaceae; Brucella.
  MEDLINE-97000351; PubMed-8843436;
MEDLINE-97000351; PubMed-8843436;
Redenbach M., Kieser H.M., Denapaite D., Eichner A.,
Kinashi H., Hopwood D.A.;
"A set of ordered cosmids and a detailed genetic and
the 8 Mb Streptomyces coelicolor A3(2) chromosome.";
Mol. Microbiol. 21:77-96(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptomyces coelicolor.
Bacteria; Firmicutes; Actinobactes
Actinomycetales; Streptomycineae;
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                                                                                                                                                                   SEQUENCE FROM N.A. STRAIN=A3(2);
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STRAIN=A3(2);
                                                                                                                                                                                                                                                                                                                                                                                 Seeger K.J., Harris I
Submitted (JUL-1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Proc. Natl. Acad. Sci. U.S.A. 99:443-448(2002).
EMBL; AE009455; AAL51307.1;
InterPro; IPRO00102; GCN5acetyltransf.
Pfam; PF00583; Acetyltransf; 1.
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                                                                                                                                                                                                                                                    Submitted
                                                                                                                                                                                                                                                                             Parkhill J.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=1902;
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1 (JUL-1998)
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100.0%; Pr
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                                                                                                                                                                                                                                                 Rajandream M.A.;
e EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 6; DB 1; Pred. No. 1.3
0; Mismatches
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5. 1.3e+02;
tches 0;
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                                                             physical map
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Search completed: December Job time : 32 secs
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Best Local
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SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN-A3(2) / M.45;
Bentley S.D., Chater K.F., Cerdeno-Tarraga A.-M., Challis G.L.,
Thomson N.R., James K.D., Harris D.E., Quail M.A., Kieser H.,
Thomson N.R., James K.D., Harris D.E., Chandra G., Chen C.W., Collins M.,
Cronin A., Fraser A., Goble A., Hidalgo J., Hornsby T., Howarth S.,
Huang C.-H., Kieser T., Larke L., Murphy L., Oliver K., O'Neil S.,
Rabbinowitsch E., Rajandream M.A., Rutherford K., Rutter S.,
Seeger K., Saunders D., Sharp S., Squares R., Squares S., Taylor K.,
Marren T., Wietzorrek A., Woodward J., Barrell B.G., Parkhill J.,
                                                                                                                                                                                                             InterPro; IPR000285; HTH_ICL
Pfam; PF01614; IClR; 1.
SMART; SM00346; HTH_ICLR; 1.
                                                                                                                                                                                                                                                                                  "Complete genome sequence of the model actinomycete Streptomyces coelicolor A3(2).";
Nature 417:141-147(2002).
-i- SIMILARITY: BELONGS TO THE ICLR FAMILY OF TRANSCRIPTIONAL
                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                             DNA-binding;
                                                                                                                                                                                                                                                          EMBL;
                                                           153
                                                                                        38 FQEAYR 43
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L; AL031107; CAA19948.1; -.
TPR000285; HTH_ICLR.
                                                             FQEAYR
                                                                                                                    Similarity 6; Conserv
                                                                                                                   12.2%;
nilarity 100.0%;
Conservative 0
                                                                                                                                                                                  264 AA;
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64 AA; 28066 MW;
                 2002,
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0; Mismatches
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                  15:39:37
                                                                                                                   DB 16; Lc..
NO. 1.4e+02;
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Title:
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Maximum Match 100%
Listing first 45 summaries
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Maximum DB seq length: 2000000000
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2: /SIDS2/gcgdata/ge
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Gapop 10.0 , Gapext 0.5
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272
1 YLYQWLGAPVPYPDPLXPRR.....DELADHIGFQEAYRRFYGPV 49
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//SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990_DAT:
//SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991_DAT:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985_DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988_DAT:*
/SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988_DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length DB	ength	В	ID	Description
ᆫ	266	97.8	49	14	AAR32936	21, 24, Gla human
2	266	97.8	49	14	AAR32937	17, 21, 24, Gla hu
ω	266	97.8	49	18	AAW34263	Glu17-osteocalcin
4	266	97.8	49	18	AAW34264	Glu17-osteocalcin
5	266	97.8	49	18	AAW34265	Gla21-osteocalcin
σ	266	97.8	49	18	AAW34266	Gla21-osteocalcin
7	266	97.8	49	20	AAW99811	Human osteocalcin
80	266	97.8	51	12	AAR10146	Human osteocarcin
9	266	97.8	98	19	AAW76094	Human osteocalcin
10	266	97.8	100	12	AAR10147	Human osteocarcin
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226 5.5 5.5													27.2			30.0	•				59.6	٠		7.	.0		94.9	95.2	7
13 198 198	8 4 13	79	74	72	72	5 5 4	61	61	58	58	55	55	39	38	15	88	20	21	95	95	38	49	99	46	47	100	49	97	100
2223	23 22	23	2 2	23	23	23	23	23	23	23	23	23	23	23	11	23	13	11	19	19	œ	23	19	22	22	23	16	13	23
AAE18389 AAB46848 AAB46849	AAU88450 AAB91920	AAU88449	AAU88447	AAU88498	AAU88453	AAU88456	AAU88500	45	AAU88499	AAU88454	AAU88497	AAU88452	AAU88442	AAU88451	AAR06631	AA017841	AAR26407	AAR06630	AAW76096	AAW76095	AAP71282	AAU85975	AAW76097	AAB91919	AAB91917	AAU10688	AAW01681	AAR20043	AAU10687
Human BGP peptide Bovine gamma-cryst Bovine gamma-cryst	Insulin/insulin-li Bone Gla protein p	Insulin/insulin-li		Þ		Insulin/insulin-li		n -	Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Human osteocalcin	at				Mouse osteocalcin	Peptide from mamma	Modified osteocalc	ocalcin p	Gla protein	Bone Gla protein p	Polymorphic varian	Bone Gla protein.	Fusion protein for	Reference sequence

ALIGNMENTS

RESULT 1

!	Z X	PA	X	PR	X	PF	×	Qq	×	PN	×	FΤ	FT	ΕŢ	FT	FΤ	FΤ	FΗ	XX	SO	×	X	×	DE:	×	ΡŢ	×	AC	×	IJ	AAR32936
	WDT: 1993-088665/11	(TEIJ) TEIJIN LTD.		31-JUL-1991; 91JP-0213251.		31-JUL-1991; 91JP-0213251.		09-FEB-1993.		JP05032697-A.		<pre>/note= "OTHER= gamma-carboxyglutamic acid"</pre>	/label= OTHER		<pre>/note= "OTHER= gamma-carboxyglutamic acid"</pre>	/label= OTHER	Misc-difference 21	Key Location/Qualifiers		Synthetic.		Gamma-carboxyglutamic acid; OS.		21, 24, Gla human osteocalsin peptide.		05-JUL-1993 (first entry)		AAR32936;	•	AAR32936 standard; peptide; 49 AA.	2936

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RESULT 2
AAR32937
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Best Local Similarity
Matches 48; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The synthetic 21, 24, gamma-carboxyglutamic acid form of human osteocalcin (OS) was produced by introducing protected Gla. To substance may be produced in high yield and is useful as stand for the determination of human OS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic human osteo:calsin for standard in determn. of natural osteo:calsin - prepd. by introducing gamma-carboxy:glutamic acid as fluorenyl protected gp.
                   The synthetic 17, 21, 24, gamma-carboxyglutamic acid form of human osteocalcin (OS) was produced by introducing protected Gla. The substance may be produced in high yield and is useful as standard for the determination of human OS.
                                                                                           Synthetic human osteo:calsin for standard in determn. of natural osteo:calsin - prepd. by introducing gamma-carboxy:glutamic acid as fluorenyl protected gp.
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                                                                                                                                                                                   31-JUL-1991;
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                                                                                                                                                             (TEIJ )
         also AAR32936
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                              TEIJIN LTD.
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                                                                                                                                                                                                                                                                      gamma-carboxyglutamic acid*
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7.4e-30;
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RESULT 4
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Best Local S
Matches 49
                                                                                              Matches
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Best Local
                                                                                                                                                         This sequence represents a human Glu17-osteocalcin peptide. This sequent is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                                                                        WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                  AAW34264 standard;
                                                                                                                                 Sequence
                                                                                                                                                                                                              Claim
                                                                                                                                                                                                                              Antibody specific for Glu17-osteocalcin, or its fragment - diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                         27-FEB-1997;
10-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
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47; Conser
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96JP-0088608
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                  peptide; 49
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                                                                                                                                                                                                             Japanese
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                                                                                               Score 266; DE Pred. No. 7.4e 0; Mismatches
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7.4e-30;
nes 2;
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.4e-30;
s 0;
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RRESULT 5
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Modified-site
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10-APR-1996;
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48; Conserv
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disorders such as osteoporosis
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Pred. No. 7.4e-30;
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RESULT 6
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10-APR-1996;
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96JP-0088608
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DB; AAX19767.
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KARP M.
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                                                                                                                                                                                       LOEVGREN T.
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RESULT 8
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To K1 is attached H and to K51 is attached OH. A novel gene encoding human OC precursor polymer was inserted into plasmid poc 980. E.coli HB101 was transformed with this plasmid, made to efficiently produce the objective polymer. The polymer we treated with lysylendopeptidase B to remove spacers. The obtained
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        going through puberty, pre- and post-menopausal women and children having high bone turnover. The assay allows more sensitive detection of human osteocalcin (hOC) in urine than in serum. Significant increases ir hOC (40-48%) were detected in serum in menopause (normal increase is 30-50% above pre-menopausal women). Detection of urine hOC using the assay showed an increase as high as 75-79%. The present sequence represents a fragment of hOC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                An assay has been developed for the detection of gamma-carboxylated human osteocalcin found in urine, where the glutamic acid residues at positions 17, 21 and 24 are gamma-carboxylated. The assay is used to measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and/or measure the rate of bone turnover (formation and/or resorption) and (formation and formation and formation and formation and (formation and formation and formation and formation and formation and (formation and formation and formation and formation and formation and (formation and formation and formation and formation and formation and (formation and formation and formation and formation and formation and (formation and formati
                                                                                                                                                                                             Human osteocarcin (OC) precursor polypeptide - purified OC by digestion with carboxypeptidase
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                                                                                                                                                   Claim
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purified human OC.
OC is a calcium bonde
bone. It is thought
        This is the amino acid sequence of the human osteocalcin, deduced from the coding exons of the human hOC gene (see AAV46429). The invention pertains to a method for expressing endogenous genes in differentiated cells of a specific type. The method involves contacting pluripotent stem cells capable of maturing into differentiated cells with a nucleic acid comprising an exogenous gene linked to a regulatory element capable of controlling expression of the exogenous gene in the differentiated cells. A population of transduced stem cells capable of maturing into differentiated cells expressing the exogenous gene is produced. Preferably, the differentiated cells are in a tissue of interest, such as bone or cartilage, and the exogenous gene is operably linked to at least one osteocalcin regulatory element derived from the hOC promoter. The
                                                                                                                                                                                                                                               Expression of exogenous genes in differentiated cells - by transducing pluripotent stem cells capable of maturing into differentiated cells with nucleic acid comprising exogenous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Promoter; tissue-specific gene expression; skeletal tissustem cell; bone; cartilage; osteocalcin; hOC gene; human; osteoporosis; osteopenia; osteosarcoma; cancer; metastas;
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 exogenous gene
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A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.coli HB101 was transformed with this plasmid, made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained human precursor was further treated with carboxy peptidase to prepare the product of the polymer was been precursor was further treated with carboxy peptidase to prepare the polymer was precursor was further treated with carboxy peptidase.
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22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                         03-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                             JP02201294-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                      calcium; vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR10147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a disease, especial primary malignancy
                                                                                                                                                                                                                                                                                                                (TAKA-) TAKARA SYUZO
                                                                                                                                                                                                                                                                                                                                                                    22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27-MAR-1991
                                                                                                                          formation and may be used to
  52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1
                                                                                                                                    is a calcium bonded protein (depending on vitamin K) produced in
ne. It is thought to be a promoting factor during the bone
                                                                                                     also
1991-018865/03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteocarcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     osteocarcin precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               46;
                                         L Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                         human OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                     AAR10147 and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            especially osteoporosis, osteopenia, lignancy or metastases (all claimed).
                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86
                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                 B
                                                                                                                                                                                                                                                                                                                                      88JP-0306931
89JP-0214239
                                                                                                                                                                                                                                                                                                                                                                   89JP-0214239
                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>۲</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                precursor polypeptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      bone
                                                  97.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97.8%;
93.9%;
                                                                                                                                                                                                                                                                                                                  X
                                                                                                     AAQ10193-98.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      formation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     polypeptide (II).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 266; DB Pred. No. 1.6e 0; Mismatches
                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                        Score 266; DB 12;
Pred. No. 1.7e-29;
0; Mismatches 3
                                                                                                                         treat diseases due to
                                                                                                                                   promoting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                      dysbolism
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-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               carboxypeptidase
                                                                                                                                                                                                                                                             used
B.
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                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                         Indels
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                                                                                                                          dysbolism of the
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                     49
                                                                                                                                                                                                                                                                       prepare
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                                                                                                                                                                                     polymer was
                                                                                                                                                                              obtained
                                         0
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                                                                                                                                                                  prepare
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                                         Gaps
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RESULT 11 AAU10687

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RESULT 12
AAR20043
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                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           bone gamma carboxyglutamate protein; haplotyping; genotyping; osteoparosis; osteopathic.
                                                                                                                                                                                                                                              The present invention relates to novel single nucleotide polymorphisms (SNPs) in the human bone gamma carboxyglutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as probes and primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds are useful for (developing) treatment of diseases associated with BGLAP activity, such as osteoporosis. The present sequence represents a reference sequence for the BGLAP protein.
                                          gamma-carboxyglutamic
                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                              Claim 27; Fig 3; 53pp;
                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200177131-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Reference sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAU10687
Peptide
         Key
                          Synthetic
                                                            Fusion protein
                                                                              09-APR-1992
                                                                                               AAR20043;
                                                                                                                AAR20043 standard;
                                                                                                                                                                                                                                                                                                                                                                osteoporosis
                                                                                                                                                                                                                                                                                                                                                                  New haplotypes of the human bone gamma useful to diagnose and treat diseases a osteoporosis -
                                                                                                                                                                                                                                                                                                                                                                                                                          Bentivegna
                                                                                                                                                                                                                                                                                                                                                                                                                                           (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-APR-2000; 2000US-195840P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-APR-2001; 2001WO-US12010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                            52
                                                                                                                                                                     1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                           YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 100
                                                                                                                                                                                                                                                                                                                                                                                                 2002-041288/05.
DB; AAS16363, AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                          SC,
                                                                                                                                                                                                                                100 AA;
                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                             (first
                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                         Chew A,
Location/Qualifiers
1..22
                                                                                                                                                                                                                                                                                                                                                                                                  AAS16364.
                                                                                                                 Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for human
                                                            expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                             entry)
                                                                                                                                                                                                      97.8%;
93.9%;
                                           acid;
                                                                                                                                                                                                                                                                                                                                              English.
                                                                                                                                                                                                                                                                                                                                                                                                                          Choi JY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100
                                                                                                                 97
                                           bone matrix;
                                                                                                                                                                                             0;
                                                                                                                                                                                                      Score 266; DB 23;
Pred. No. 1.7e-29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BGLAP protein
                                                            of human osteocalcin
                                                                                                                A.
                                                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                          Koshy B,
                                                                                                                                                                                                                                                                                                                                                                      a carboxyglutamate protein associated with the gene s
                                          Gla protein
                                                                                                                                                                                                                                                                                                                                                                                                                          Rounds E,
                                                                                                                                                                                                              Length 100;
                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                          Stephens JC;
                                                                                                                                                                                                                                                                                                                                                                     rotein gene,
gene such a
                                                                                                                                                                                             0;
                                                                                                                                                                                             Gaps
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                                                                                                                                                                                    RESULT 13
AAW01681
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Best Local Similarity
Matches 45; Conserv
                                                                             Homo
                                                                                              bone
                                                                                                        BGP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cleavage-site
Modified-site
                 Misc-difference
                                  Misc-difference
                                                                                                                         Bone
                                                                                                                                         01-APR-1997
                                                                                                                                                                           AAW01681 standard; protein;
                                                                                                                                                                                                                                                                                          Sequence
                                                                                                                                                                                                                                                                                                                                                                                                         Claim 15; Fig 7; 53pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EP463571-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Peptide
                                                                                                                                                            AAW01681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1992-009183/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eguchi H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TEIJ ) TEIJIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-JUN-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-NOV-1990;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20-JUN-1991;
                                                    Misc-difference
                                                                                                                                                                                                                       49
                                                                                                                         Gla
                                                                             sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAQ20210
                                                                                                                       protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kamimura
                                                                                                                                                                                                                                                                                           97
                                                                                                                                                                                                                                                         Conservative
                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                           A,
               /note=
12
                                  /note≃
3
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90JP-0159909
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/note=
21
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49..97
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23..44
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TF,
                                                                                                                                                                                                                                                                 95.2%;
91.8%;
                                                                                                                                                                            49
                                                                                                                                                                                                                                                         0,
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This sequence is a specific example of a claimed generic fusion protein comprising human osteocalcin. The pro-peptide is recognised by an enzyme capable of Glu to Gla conversion on human osteocalcin. The recombinant protein was obtained by culturing host cells transformed with a vector containing the synthetic coding sequence. The Glu residues could then be converted to Gla (i.e. gamma-carboxyglutamic acid) and the osteocalcin sequence cleaved from the propeptide. The mature protein is suitable for use in immunoassays and as a drug for treatment of bone metabolism disorders. See also AAR20044-6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human osteocalcin prodn. - using fusion protein for expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bone gla protein; osteocalcin; Vitamin K-dependent protein; matrix; therapy; diagnosis; assay; metabolic bone disease.
                                                                                                                                      Location/Qualifiers
  "underlined
                                            "underlined in
                                                                                         "underlined in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pro_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 signal_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sugiyama
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 259; DB 13;
Pred. No. 1.5e-28;
0; Mismatches 4,
                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DNA coding host cells
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  'n
specification'
                                            specification"
                                                                                            specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hosoda
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
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AAU10688
ID AAU10
XX AU10
AC AAU10
XC AAU10
XX 14-FE
XY 14-FE
XX Human
KW bone
KW bone
KW bostec
XX Homo
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                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                      A method for determining concentration of osteocalcin in serum or plasma is improved with addition of divalent metal ions to inhibit decomposition of the protein. The method is useful in therapy and diagnosis of bone disease. The present sequence is osteocalcin (a vitamin K-dependent protein that is a component of the bone matrix, or alternatively bone Gla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Determn. of osteocalcin in serum metal ions to inhibit decompsn. c and diagnosis of bone disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HENN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Modified-site
                         Misc-difference
                                                                                                                       Human; single nucleotide polymorphism; SNP; BGLAP; chromosome 1q25-q31; bone gamma carboxyglutamate protein; haplotyping; genotyping;
                                                                                                                                                                                       14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Disclosure; Column 1; 9pp; German.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HAM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Misc-difference
                                                 Misc-difference
                                                                                                              osteoporosis;
                                                                                                                                                              Polymorphic variant of human
                                                                                                                                                                                                               AAU10688
                                                                                                                                                                                                                                     AAU10688 standard;
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                              protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bergmann A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               29-NOV-1993;
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                                                                                                                                                                                                                                                                                                                 1 YLYQWLGAPVPYYDDLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                       sapiens
                                                                                                                                                                                                                                                                                                  YLYQWLGAPVPYPDPLEPRRXVCXLNPDCDELADRIGFQEAYRRFYGPV
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                                                                                                                                                                                                                                                                                                                                                               Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                     49
                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Weckermann
                                                                                                                                                                                                                                                                                                                                                                                                     A,
                                                                                                              osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DIAGNOSTICA GMBH.
                        /note=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93DE-4340597
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                                                 Location/Qualifiers 82
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46
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42
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24
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23..29
            note=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /label=
                                                                                                                                                                                                                                       Protein;
                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                               94.98;
            "Substitution
                                    "Substitution of Glu to Lys""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER
                                                                                                                                                                                                                                                                                                                                                  Score 258; DB Pred. No. 9.8e 0; Mismatches
                                                                                                                                                                                                                                       100
                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                             BGLAP protein.
                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 m or plasma - with addn. of divale
of the protein, useful in therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
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            of.
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            Arg
                                                                                                                                                                                                                                                                                                                                                               DB 16;
.8e-29;
            ť
                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                          Length 49;
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                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                divalent
                                                                                                                                                                                                                                                                                                                                                    0;
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RESULT 15
AAB91917
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                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
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Best Local
                                  17-MAY-1999;
10-SEP-1999;
15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific ollgonucleotides (ASOs) as proband primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds useful for (developing) treatment of diseases associated with BGLAP activity, such as osteoporosis. The present sequence represents a polymorphic variant of the BGLAP protein (AAU10687).

Note: The present sequence is not given in the specification but is created by the indexer from the information given in the patent.
                                                                                                                                                           Homo sapiens.
Synthetic.
                                                                                                                                                                                                                                              Bone Gla protein
                                                                                                                                                                                                                                                                      22-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                   WO200069900-A2
                                                                                                                                                                                              blood component;
hydroxyl; thiol;
                                                                                                                                                                                                                        Protection;
                                                                                                                                                                                                                                                                                                AAB91917;
                                                                                                                                                                                                                                                                                                                        AAB91917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The present invention relates to novel single nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New haplotypes of the human bone gamma useful to diagnose and treat diseases a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bentivegna SC,
                                                                                    17-MAY-2000;
                                                                                                            23-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11-APR-2000; 2000US-195840P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11-APR-2001;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (SNPs)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                     52
                                                                                                                                                                                                                                                                                                                                                                                                  1 YLYQWLGAPVPYPDPLXPRRXYCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                     YLYQWLGAPVPYPDPLEPRREVCELNPDCDKLADHIGFQEAYQRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2002-041288/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27; Page -;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          In the human bone gamma carboxyglutamate protein (BGLAP) gene of human bone gamma carboxyglutamate protein (BGLAP) gene
                                                                                                                                                                                                                                                                                                                                                                                                                                   44;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 89.1
44; Conservative
                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         diagnose and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100 AA;
                                                                                                                                                                                                           endogenous therapeutic peptide; peptidase; conjugation;
nent; modification; succinimidyl; maleimido group; amino
                                                                                    2000WO-US13576.
                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2001WO-US12010
                                  99US-0134406.
99US-0153406.
99US-0159783.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chew A,
                                                                                                                                                                                                                                              peptide SEQ
                                                                                                                                                                                              hormone; growth factor; neurotransmitter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      53pp;
                                                                                                                                                                                                                                                                                                                       Peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                               94.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Choi JY,
                                                                                                                                                                                                                                                                                                                                                                                                                              Score 258; UB
Pred. No. 2.2e
2; Mismatches
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                                                                                                                                                                                                                                               ID NO:1093.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a carboxyglutamate protein associated with the gene s
                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 23;
.2e-28;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 100
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gene such a
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(CONJ-) CONJUCHEM INC

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Search completed: December 4, 2002, 15:44:14 Job time: 37 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                         The present invention describes a modified therapeutic peptide (I) C comprising a therapeutically active amino acid region (III) and a CC reactive group (II) (e.g. succinimidyl and maleimido groups) attached to CC a less therapeutically active amino acid region (IV), which covalently CC bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptides e.g. hormones, growth (I) are useful for modifying therapeutic peptides e.g. hormones, growth (C factors and neurotransmitters, to protect them from peptidase activity cin vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to albumin prevents or composed the action of peptidases to increase length of activity (half life) and specificity as bonding to large molecules decreases (Intracellular uptake and interference with physiological processes. AAB90829 to AAB92441 represent peptides which can be used in the case maplification of the present invention.
                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                              Best
                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Modifying and attaching therapeutic peptides to albumin prevents peptidase degradation, useful for increasing length of in vivo activity
                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 552-553; 733pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bridon DP,
                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                             46;
                                                                                                                                                                                                                                                                                                                                                                                                        47 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ezrin AM,
                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                       90.8%;
93.9%;
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                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                 Score 247; DB 22; Length 47; Pred. No. 3.3e-27; O; Mismatches 1; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thibaudeau K;
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Minimum DB
Maximum DB
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Listing first 45 summaries
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               seq length: 0 seq length: 2000000000
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Match
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113:
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                             Published_Applications_AA: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           :/cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US06_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US07_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US08_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US09_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
:/cgn2_6/ptodata/1/pubpaa/US00_PUBCOMB.pep:*
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
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                                                                                                                                                               1690
                                                                                                                                                                                                                    103
116
   US-10-001-876-146
US-9-895-913A-364
US-9-895-913A-364
UUS-9-815-242-11343
US-9-814-132-501
US-9-9-814-132-501
US-9-788-657-19
UUS-9-788-657-19
UUS-9-788-043C-5
UUS-9-924-400-138
UUS-9-9429-755-138
UUS-9-9429-755-138
UUS-9-810-936-134069
UUS-9-810-936-134069
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UUS-9-810-936-134069
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US-09-801-968-21
US-09-858-349-2
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Sequence 29, Appl Sequence 21, Appl Sequence 146, App Sequence 1143, App Sequence 11343, App Sequence 16, Appl Sequence 16, Appl Sequence 19, Appl Sequence 19, Appl Sequence 138, App Sequence 138, App Sequence 138, App Sequence 138, App Sequence 133, App
                                                                                                                                                                                                                                                                                                                                                                                          Description
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ALIGNMENTS

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Sequence 21, Application US/09801968
PREENT NO. US20020082205A1
GENERAL INFORMATION:
APPLICANT: Itoh, NO. US20020082205A1uyuki
APPLICANT: Kavanaugh, W. Michael
TITLE OF INVENTION: HUMAN FGF-23 GENE AND GE
TITLE OF INVENTION: PRODUCTS
TITLE OF INVENTION: PRODUCTS
TITLE OF INVENTION: PRODUCTS
TITLE OF INVENTION NUMBER: US/09/801,968
CURRENT APPLICATION NUMBER: US/09/801,968
CURRENT FILING DATE: 2001-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Itch, No. US20020001825Alel F1
TITLE OF INVENTION: No. US20020001825Alel F1
FILE REFERENCE: 08035.0001-01000
CURRENT APPLICATION NUMBER: US/09/822,485
CURRENT FILING DATE: 2001-04-02
NUMBER OF SEQ ID NOS: 35
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 29
LENGTH: 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; OTHER INFORMATION: Description of Artificial Sequence:protein US-09-822-485-29
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US-09-822-485-29
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Patent No. US20020001825A1
                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 13; Conserv
NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                      7 GAPVPYPDPLEPR 19
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                                                                                                                                                                                                                                                                                                                                                                                                                                      26.5%;
100.0%;
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Pred. No.
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. 8.3e-08;
ches 0;
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US-09-858-349-2
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APPLICANT: PLAKSIN, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version 4.0 SEQ ID NO 21
                              SOFTWARE: PatentIn version 3.1
SEQ ID NO 146
LENGTH: 61
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Best Local :
                                                                                                                                                                                                                                                                                                                               Sequence 146, Application US/10001876 Patent No. US20020177140A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn version 3.1 SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2, Application US/09858349 Patent No. US20020012909A1
                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                               APPLICANT: Liu, Chenghua
TITLE OF INVENTION: Compositions and Methods Relating to Prostate Specific Genes and
FILE REFERENCE: DEX-0285
CURRENT APPLICATION NUMBER: US/10/001,876
CURRENT FILING DATE: 2001-11-20
PRIOR APPLICATION NUMBER: 60/252,186
PRIOR FILING DATE: 2000-11-21
RIUMBER OF SEQ ID NOS: 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: SMALL FUNCTIONAL UNITS OF ANTIBODY HEAVY CHAIN VARIABLE REGIONS FILE REFERENCE: 87534-2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US/09/858,349
CURRENT FILING DATE: 2000-06-02
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                                                                                                                                                                                             APPLICANT: Sun,
                                                                                                                                                                                                                                    APPLICANT:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 136
TYPE: PRT
ORGANISM: mouse hybridoma specific for H-2D + RGPGRAFVTI peptide
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ORGANISM: Homo sapien
                    TYPE: PRT
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                                                                                                                                                                                                                                                                                                                                                                                                                                     122 GAPVPYPDPLEPR 134
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Pred. No.
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8.3e-08;
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6.7e-07;
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Query Match
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           PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILLING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILLING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 368
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 364
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                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11343, Application US/09815242 Patent No. US20020061569A1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Identification of Polynucleotides
TITLE OF INVENTION: Encoding No. US20020160456Alel Helicobacter Polypeptides in
TITLE OF INVENTION: Encoding No. US20020160456Alel Helicobacter Polypeptides in
TITLE OF INVENTION: Genome
FILE REFERENCE: 06132/043002
CURRENT APPLICATION NUMBER: US/09/895,913A
CURRENT FILING DATE: 2001-06-29
PRIOR APPLICATION NUMBER: US 08/881,227
PRIOR FILING DATE: 1997-06-24
                                                                                                                                         FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                        APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                          APPLICANT:
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                                                                                                                                                                                                                                                                      Carr, Grant J
                                                                                                                                                                                                                                                                                                          Wall, Daniel
                                                                                                                                                                                                                                                                                                                           Zyskind, Judith W.
                                                                                                                                                                                                                                                                                                                                                Ohlsen, Kari L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Miller, Charles
                                                                                                                                                                                                                                                       Yamamoto, Robert T.
                                                                                                                                                                                                                                                                                       Trawick, John D.
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2000-10-
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100.0%;
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PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 11343
LENGTH: 70
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; ORGANISM: Gallus sp. US-09-775-932-16
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US-09-775-932-16
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US-09-815-242-11343
                                                  SOFTWARE: P
SEQ ID NO 16
LENGTH: 116
                                                                                                                                                                                                GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: University of British Columbia
APPLICANT: University of British Columbia
TITLE OF INVENTION: Production and use of Modified Cystatins
TITLE OF INVENTION: 98069
TITLE REFERENCE: 58069
TITLE REFERENCE: 58069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 501, Application (
Patent No. US20020061848A1
GENERAL INFORMATION:
APPLICANT: Bhatla, Ajay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQ ID NOS: 599
SOFTWARE: FASTSEQ for Windows Version 3.0/4.0
SEQ ID NO 501
LENGTH: 103
                                                                                                                                                                                                                                                                                                       Sequence 16, Application US/09775932 Patent No. US20020137671A1
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Best Local :
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APPLICANT: Probst, Peter
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATMENT AND
TITLE OF INVENTION: DIAGNOSIS OF CHLAMYDIAL INFECTION
FILE REFERENCE: 210121.469C8
CURRENT FILING DATE: 2001-04-23
UNMBER OF SEQ ID NOS: 599
                                                                                                                     CURRENT APPLICATION NUMBER: US/09/775,932
CURRENT FILING DATE: 2001-02-02
PRIOR PPLICATION NUMBER: C999/00717
PRIOR FILING DATE: 1999-08-05
PRIOR APPLICATION NUMBER: 60/095,503
PRIOR FILING DATE: 1998-08-05
                                                                                                        NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT ORGANISM: Chlamydia pneumoniae
                                   TYPE: PRT
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                                                                                    PatentIn Ver. 2.0
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b; Pred. No. 11;
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o. 7.8;
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                                                                                                                                  US-09-969-834-4
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                                                                 Matches
                                                                                              Query Match
                                                                                                                                                                                                                                                                         TELEFAX: 415-845-4166
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                Local Similarity
nes 6; Conserv
31 LGAPVP
                  6 LGAPVP 11
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FESSES for Windows Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/969,834
FILING DATE: 01-OCT.2001
CLASSIFICATION: CUnknown>
                                                                                                                                                                                                                                                                                                                        ATTORNEY/AGENT INFORMATION:

NAME: Billings, Lucy J.

REGISTRATION NUMBER: 36,749

REFERENCE/DOCKET NUMBER: PF-0193 US

TELECOMMUNICATION INFORMATION:

TELEPHONE: 415-855-0555
                                                                                                                                               SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
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Goli, Surya K.
TITLE OF INVENTION: NOVEL HUMAN CYSTATIN-LIKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES:
                                                                                                                                                              LIBRARY: GenBank
CLONE: 118195
                                                                                                                                                                                                            STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                              LENGTH: 139 amino acids TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/791,522
FILING DATE: <Unknown>
APPLICATION NUMBER: 09/471,765
FILING DATE: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Incyte Pharmaceuticals, Inc. STREET: 3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/09/471,765 FILING DATE: <Unknown>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ZIP: 94304
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                                                                ilarity 100.0%;
Conservative (
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100.0%; Pred. No.
tive 0; Mismatc
                                                                                 12.2%; Score 6; DB 10; 100.0%; Pred. No. 14;
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                                                                 Indels
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RESULT 10 US-09-788-657-19

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; SEQ ID NO 5
; LENGTH: 1690
; TYPE: PRT
; ORGANISM: human
US-09-788-043C-5
                                                   RESULT 12
US-09-24-400-138
US-09-24-400-138
; Sequence 138, Application US/09924400
; Patent No. US20020165371A1
; GENERAL INFORMATION:
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US-09-788-043C-5
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-788-657-19
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SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Heller, Renu
                                                                                                                                                                                                                                                                                                                       Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
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APPLICANT: Sass, Philip
APPLICANT: Kinzler, Kenneth
APPLICANT: Grasso, Luidi
APPLICANT: Vogelstein, Bert
TITLE OF INVENTION: Methods for generating hypermutable
TITLE OF INVENTION: Yeast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: yeast
FILE REFERENCE: 01107.00097
CURRENT APPLICATION NUMBER: US/09/788,657
CURRENT FILING DATE: 2001-02-21
PRIOR APPLICATION NUMBER: 60/184,336
PRIOR FILING DATE: 2000-02-23
APPLICANT: Frudakis, Tony N. APPLICANT: Reed, Steven G. APPLICANT: Smith, John M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Zuo, Fengrong
APPLICANT: Klonowski, Paul
TITLE OF INVENTION: No. US20020107361A1el Metalloproteases Having
TITLE OF INVENTION: Thrombospondin Domains and Nucleic Acid Compo
TITLE OF INVENTION: Encoding the Same
FILE REFERENCE: ROCH-004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT FILING DATE: 2001-02-16
PRIOR APPLICATION NUMBER: 60/184,152
PRIOR FILING DATE: 2000-02-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/788,043C CURRENT FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS:
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                                                                                                                                                                                                      216 LEPRRE 221
                                                                                                                                                                                                                                                                                Y Match 12.2%; Score 6; DB Local Similarity 100.0%; Pred. No. 1. hes 6; Conservative 0; Mismatches
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les 6; Conserv
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                                                                                                                                   OTHER INFORMATION: Predicited HLA A2.1 Motifs US-09-810-936-138
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SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 138
                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Frudakis, Tony N.
APPLICANT: Reed, Steven G.
APPLICANT: Smith, John M.
APPLICANT: Misher, Linda E.
APPLICANT: Dillon, Davin C.
APPLICANT: Retter, Marc W.
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 138
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                                                                                 Query Match
Best Local S
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                                                                   Matches
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APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                    APPLICANT: Day, Craig H.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE
TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121.419C11
CURRENT APPLICATION NUMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
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TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: AND DIAGNOSIS OF BREAST CANCER
FILE REFERENCE: 210121,419C12
CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2001-08-07
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TYPE: PRT
ORGANISM: Artificial Sequence
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TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
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                               39 QEAYR 43
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nes 5; Conser
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nes 5; Conserv
3 QEAYR 7
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Dillon, Davin C.
Retter, Marc W.
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Day, Craig H.
Li, Samuel X.
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Day, Craig H.
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                                                               10.2%; Score 5; DB ilarity 100.0%; Pred. No. 8. Conservative 0; Mismatches
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3. 8.6e+04;
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                                                                                               Length 9;
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RESULT 14

US-09-429-755-138

Sequence 138, Patent No. US

INFORMATION:

US20020111467A1

Application US/09429755A

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                                                                                                                      US-09-924-400-133
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APPLICANT: Smith, John M.
APPLICANT: Smith, John M.
APPLICANT: Misher, Lynda
APPLICANT: Misher, Lynda
APPLICANT: Dillon, Davin C.
APPLICANT: Dillon, Davin C.
TITLE OF INVENTION: COMPOSITIONS AND METHODS F
TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF
FILE REFERENCE: 210121.419C6
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Frudakis, Tony N.
APPLICANT: Reed, Steven G.
APPLICANT: Smith, John M.
APPLICANT: Misher, Lynda E.
APPLICANT: Dillon, Davin C.
APPLICANT: Retter, Marc W.
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 133
                                                           Matches
                                                                        Query Match
Best Local 9
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APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                            TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY TITLE OF INVENTION: AND DIAGNOSIS OF BREAST CANCER FILE REFERENCE: 210121.419C12
CURRENT APPLICATION NUMBER: US/09/924,400
CURRENT FILING DATE: 2001-08-07
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CURRENT APPLICATION NUMBER: US/09/429,755A
CURRENT FILING DATE: 1999-10-28
NUMBER OF SEQ ID NOS: 315
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                                                                                                                                                              LENGTH: 23
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                   OTHER INFORMATION: Predicited Th Motifs (B-cell epitopes)
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                         39 QEAYR 43
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QEAYR
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                                                           Similarity 5; Conserv
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Misher, Lynda E.
Dillon, Davin C.
Retter, Marc W.
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Harlocker, Susan L.
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                                                           Conservative
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100.0%; Pr
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100.0%; Pr
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                                                           Mismatches
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                                                              DB . 32;
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                                                                                     Length 23;
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                                                         Indels
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RESULT 16
US-09-864-761-34069
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FEATURE:

OTHER INFORMATION: EXPRESSED IN PLACIOTHER INFORMATION: EXPRESSED IN BT47.

OTHER INFORMATION: EXPRESSED IN BT47.

OTHER INFORMATION: EXPRESSED IN HELA
OTHER INFORMATION: EXPRESSED IN FETA
OTHER INFORMATION: EXPRESSED IN BONE
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SEQ ID NO 34069
LENGTH: 23
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PRIOR FILING DATE: 2000-09-27
PRIOR APPLICATION NUMBER: PCT/US01/00666
PRIOR FILING DATE: 2001-01-30
PRIOR APPLICATION NUMBER: PCT/US01/00667
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PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 09/774,203
PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
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PRIOR APPLICATION NUMBER: PCT/US01/00664
PRIOR FILING DATE: 2001-01-30
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PRIOR FILING DATE: 2000-08-03
PRIOR APPLICATION NUMBER: GB 24263.6
PRIOR FILING DATE: 2000-10-04
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APPLICANT: Rank, David R.
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                                                                                                                                                                                                                                                                                                                ORGANISM: Homo sapiens
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FILING DATE: 2001-01-30
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INFORMATION: INFORMATION:
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Chen, Wensheng
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                                            D IN BT474, SIGNAL = 2.2
D IN LUNG, SIGNAL = 1.9
D IN HELA, SIGNAL = 2.7
D IN FETAL LIVER, SIGNAL = 2
D IN BONE MARROW, SIGNAL = 2
D IN HBLIOO, SIGNAL = 2.7
D IN ADULT LIVER, SIGNAL = 2.7
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SIGNAL -
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Query Match

10.2%;

Score 5;

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10;

Length

Best Local Similarity 100. Matches 5; Conservative

100.0%; Pred. No. 32; ative 0; Mismatches

0;

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; FEATURE:
; OTHER INFORMATION: Predicited Th Motifs (B-cell epitopes)
; US-09-429-755-133
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US-09-810-936-133
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US-09-429-755-133
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; OTHER INFORMATION: Predicited Th Motifs (B-cell epitopes) US-09-810-936-133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TITLE OF INVENTION: THERAPY AND DIAGNOSIS OF BREAST CANCER FILE REFERENCE: 210121.419C11
CURRENT APPLICATION NUMBER: US/09/810,936
CURRENT FILING DATE: 2001-03-16
NUMBER OF SEQ ID NOS: 334
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 133
LENGTH: 23
                                                                                    TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE TITLE OF INVENTION: TREATMENT AND DIAGNOSIS OF BREAST CANCER FILE REFERENCE: 210121.419C6 CURRENT APPLICATION NUMBER: US/09/429,755A CURRENT FILING DATE: 1999-10-28 NUMBER OF SEQ ID NOS: 315 SOFTWARE: FastSEQ for Windows Version 3.0 SEQ ID NO 133 LENGTH: 23
                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION: APPLICANT: Frudaki
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APPLICANT:
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Best Local :
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APPLICANT:
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ORGANISM: Artificial Sequence
                                                   ORGANISM: Artificial Sequence
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Retter, Marc W.
Dillon, Davin C.
Davin C.
OMPOSITIONS AND METHODS FOR THE
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Reed, Steven G.
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Harlocker, Susan L.
Day, Craig H.
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Dillon, Davin C.
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5. 32;
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-922-261-152
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US-09-821-984-38
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CURRENT ETLING DATE: 2001-08-03
PRIOR APPLICATION NUMBER: US/09/461,697
PRIOR FILING DATE: 1999-12-14
NUMBER OF SEQ ID NOS: 466
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 152
                                                                  NUMBER OF SEQ ID NOS: 44
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 38
LENGTH: 26
TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 38, Application US/09821984 Patent No. US20020004205A1
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Best Local Similarity
Matches 5; Conserv
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APPLICANT:
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TITLE OF INVENTION: METHOD OF INVESTIGATING
TITLE OF INVENTION: MOLECULAR INTERACTIONS
FILE REFERENCE: 07083.0007U2
CURRENT APPLICATION NUMBER: US/09/821,984
CURRENT FILING DATE: 2001-03-30
PRIOR APPLICATION NUMBER: 60/193,826
PRIOR APPLICATION NUMBER: 60/193,826
PRIOR FILING DATE: 2000-03-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Katz, Lawrence C.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR DIAGNOSING
TITLE OF INVENTION: AND TREATING CONDITIONS, DISORDERS, OR DISEASES INVOLVING
TITLE OF INVENTION: CELL DEATH
FILE REFERENCE: 10001-005-999
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APPLICANT:
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     FEATURE: OTHER INFORMATION: Description of Artificial Sequence:/noteOTHER INFORMATION: synthetic construct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16 LEPRR 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10 QEAYR 14
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                                                                                                                                                                                                                                                                                                                                          Gray, John G
                                                                                                                                                                                                                                                                                                                                                          Consler, Thomas G. Iannone, Marie A.
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Thomas, Mary Beth
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Puranam, Kasturi
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US-09-799-983-17
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US-09-799-983-17
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LENGTH: 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
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APPLICANT: PATKET, Charles
TITLE OF THE TOTAL OF THE T
                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/09/864,761 CURRENT FILING DATE: 2001-05-23 PRIOR APPLICATION NUMBER: US 60/180,312 PRIOR FILING DATE: 2000-02-04
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SOFTWARE: PatentIn version 3.0
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                                                                                                                                             APPLICATION NUMBER: GB 24263.6
FILING DATE: 2000-10-04
APPLICATION NUMBER: US 60/236,359
FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666
FILING DATE: 2001-01-30
                                                                             APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
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                                                                 APPLICATION NUMBER: PCT/US01/00669
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Chen, Wensheng
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                               : 2001-01-30
NUMBER: PCT/US01/00665
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100.0%; Pr
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; Pred. No. 38;
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lo. 36;
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NAME, (34)
LOCATION: (34)
OTHER INFORMATION: X
NAME, KEY: SITE
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US-09-925-299-1355
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                                                                                                                                              SOFTWARE: PatentIn Ver.
SEQ ID NO 1355
LENGTH: 40
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Best Local :
                                                                                                                                                                                                              CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05883
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
                                                                                                                                                                                                                                                                                                    CURRENT APPLICATION NUMBER: US/09/925, 299
                                                                                                                                                                                                                                                                                                                      APPLICANT: Rosen et al. TITLE OF INVENTION: Nucleic Acids, Proteins and FILE REFERENCE: PA102
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                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 1556
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                                             LOCATION: (25)
OTHER INFORMATION:
                                                                                                                  ORGANISM: Homo sapiens
                                                                                                                                     TYPE: PRT
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                 NAME/KEY: SITE LOCATION: (34)
                                                                                 NAME/KEY: SITE
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FILING DATE: 2001-01-30
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Xaa equals any of the naturally occurring L-amino acids
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IN BONE MARROW, SIGNAL = 8.7
IN LUNG, SIGNAL = 9.7
IN HELA, SIGNAL = 9.6
IN BRAIN, SIGNAL = 7.5
IN BRAIN, SIGNAL = 7.5
HIT: AW162304.1, EVALUE 3.00e-
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US-09-864-761-33570
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US-09-888-615-117
                                              CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
PRIOR FILING DATE: 2000-10-04
PRIOR APPLICATION NUMBER: US 60/236,359
PRIOR FILING DATE: 2000-00-05-05
PRIOR APPLICATION NUMBER: US 60/236,359
PRIOR FILING DATE: 2000-00-05-05
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CURRENT FILING DATE: 2001-06-26
PRIOR APPLICATION NUMBER: 60/214,047
PRIOR FILING DATE: 2000-06-26
NUMBER OF SEQ ID NOS: 150
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TITLE OF INVENTION: NOVEL PROTEASES
FILE REFERENCE: 038602/1214
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 PRIOR APPLICATION NUMBER: PCT/US01/00666 PRIOR FILING DATE: 2001-01-30
                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                            FILE REFERENCE: Aeomica-x-1
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Local Similarity 100.0%;
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Chen, Wensheng
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PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
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RESULT 26
US-09-864-761-37719
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Best Local Similarity
Technes 5; Conserve
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TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY FILE REFERENCE: Acomica-X-1 CURRENT APPLICATION NUMBER: US/09/864,761 CURRENT FILING DATE: 2001-05-23 PRIOR APPLICATION NUMBER: US 60/180,312 PRIOR FILING DATE: 2000-02-04
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PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
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OTHER INFORMATION:
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ORGANISM: Homo sapiens
FEATURE:
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FILING DATE: 2000-09-21
APPLICATION NUMBER: US 09/608,408
FILING DATE: 2000-06-30
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APPLICATION NUMBER: PCT/US01/00663
FILING DATE: 2001-01-30
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                                                                                                                                                                                                                                                                    Hanzel, David K.
Chen, Wensheng
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N: EXPRESSED IN ADULT LIVER, SIGNAL = 0.87

N: EXPRESSED IN PLACENTA, SIGNAL = 0.87

N: EXPRESSED IN HONE MARROW, SIGNAL = 0.98

N: EXPRESSED IN HBL100, SIGNAL = 1.2

N: EXPRESSED IN LUNG, SIGNAL = 1.1

N: EXPRESSED IN LUNG, SIGNAL = 1.1

N: EXPRESSED IN HEART, SIGNAL = 1.6

N: EXPRESSED IN HEART, SIGNAL = 1.2

N: EXPRESSED IN HEART, SIGNAL = 1.6

N: EXPRESSED IN HEART, SIGNAL = 1.2

N: EXPRESSED IN HEART SIGNAL = 1.2

N: EXPRESSE
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EXPRESSED IN I
EXPRESSED IN I
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Pred. No.
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2000-08-03

GB 24263.6

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GENERAL INCOMPANDE SEWART, VINCENCE APPLICANT: Sewart, Vincence APPLICANT: Falco, S. Carl
APPLICANT: Allen, Stephen M.
TITLE OF INVENTION: GLYCINE METABOLISM ENZYMES
FILE REFERENCE: BB1192 US CIP
CURRENT APPLICATION NUMBER: US/09/873,880
CURRENT FILING DATE: 2001-06-04
CURRENT APPLICATION NUMBER: 09/363,321
                                                                                                                                                                                                                                                                                                                         RESULT 27
US-09-873-880-12
; Sequence 12, A
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OTHER INFORMATION: EXPRESSED IN BT474, SIGNAL = 0.63

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 0.99

OTHER INFORMATION: EST_HUMAN HIT: AA757099.1, EVALUE 6.00e-06

OTHER INFORMATION: SWISSPROT HIT: Q10411, EVALUE 2.70e+00

US-09-864-761-37719
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Best Local
SOFTWARE: M:
SEQ ID NO 12
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                                                                                                                                                                                                                                                                                                      Sequence 12, Application US/09873880 Patent No. US20020123118A1
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                                    PRIOR APPLICATION NUMBER: 09/363,321
PRIOR FILING DATE: July 28, 1999
PRIOR APPLICATION NUMBER: 60/094,839
PRIOR FILING DATE: July 31, 1998
NUMBER OF SEQ ID NOS: 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: Annomax Sequence
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TYPE: PRT
ORGANISM: HOMO sapiens
FEATURE:
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00668
FILING DATE: 2001-01-30
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APPLICATION NUMBER: US 09/774,203
FILING DATE: 2001-01-29
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APPLICATION NUMBER: US 60/234,687
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5; Conservative
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100.0%; Pr
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Pred. No.
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; TYPE: PRT
; ORGANISM: Zea
US-09-873-880-12
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US-09-864-761-36551
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                                                                                                    SOFTWARE: Annomax Sequence Listing Engine vers. SEQ ID NO 36551 LENGTH: 57
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PRIOR FILING DATE: 2000-09-27
PRIOR APPLICATION NUMBER: PCT/US01/0066
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CURRENT FILING DATE: 2001-05-23
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                                                                                                                                                                                                                                     PRIOR FILING DATE: 2000-09
PRIOR APPLICATION NUMBER:
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FEATURE:
OTHER INFORMATION: MAP TO APO00247.1
OTHER INFORMATION: EXPRESSED IN HBL100, SIGNAL = 0.67
                                                          ORGANISM: Homo sapiens
                                                                                  TYPE: PRT
                                                                                                  LENGTH:
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                                                                                                                                                         ING DATE: 2001-01-29
SEQ ID NOS: 49117
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Chen, Wensheng
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NUMBER: US 09/608,408
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Pred. No.
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: Sequence 1110, Application US/09867550
Patent No. US20020082206A1
: GENERAL INFORMATION:
: APPLICANT: Leach, Martin D.
; APPLICANT: Mehraban, Fuad,
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US-09-925-297-514
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                                                                                      RESULT 30
US-09-867-550-1110
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                                                                                                                                                                                                                                                                                             ; OTHER INFORMATION: US-09-925-297-514
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Best Local S
Matches 5
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APPLICANT: Rosen et al.
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Matches 5; Conserv
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SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 514
LENGTH: 60
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: PCT/US00/05989
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies FILE REFERENCE: PA105
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OTHER INFORMATION: Xaa equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION: (1)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
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OTHER INFORMATION:
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nes 5; Conserv
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NN: EXPRESSED IN BRAIN, SIGNAL = 0.75

NN: EXPRESSED IN HEART, SIGNAL = 0.75

NN: EXPRESSED IN LUNG, SIGNAL = 0.92

NN: EXPRESSED IN LUNG, SIGNAL = 0.85

NN: EXPRESSED IN FETAL LIVER, SIGNAL = 0.65

NN: EXPRESSED IN FETAL LIVER, SIGNAL = 0.65
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EXPRESSED
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IN ADULT LIVER, SIGNAL = 0.72
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Pred. No
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5. 76;
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PRIOR APPLICATION NUMBER: USSN 60/208,427
PRIOR FILING DATE: 2000-05-30
NUMBER OF SEQ ID NOS: 2125
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1110
SEQ ID NO 1110
LENGTH: 63
TYPE: PAT
ORGANISM: Homo sapiens
US-09-867-550-1110
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                                                                                                                                                       US-09-925-297-742
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                                                                                              Sequence 742, Application US/09925297 Patent No. US20020081659A1 GENERAL INFORMATION:
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SEQ ID NO 451
LENGTH: 64
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Best Local Similarity
Matches 5; Conserv
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Best Local Similarity
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TITLE OF INVENTION: No. US20020082206Alel Polynucleotides from Atherogenic Cells a
TITLE OF INVENTION: Thereby
FILE REFERENCE: 21402-013 (Cura-313)
CURRENT APPLICATION NUMBER: US/09/867,550
CURRENT FILING DATE: 2001-09-20
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TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC008
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                                               APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins
FILE REFERENCE: PA105
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              CURRENT APPLICATION NUMBER: US/09/925,297 CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT ORGANISM: Homo sapiens
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OTHER INFORMATION: Xaa
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100.0%; Pred. No.
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5. 79;
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US-09-764-847-647
; Sequence 647, Application US/09764847
; Patent No. US20020132767A1
; GENERAL INFORMATION:
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SEQ ID NO 647
LENGTH: 65
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Best Local Similarity
Matches 5; Conserva
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Best Local Similarity
Matches 5; Conserv
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PRIOR APPLICATION NUMBER: 60/124,
PRIOR FILING DATE: 1999-03-12
NUMBER OF SEQ ID NOS: 928
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 742
                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                             APPLICANT: Hanzel, David K.

APPLICANT: Chen, Wensheng

TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL I

TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY

FILE REFERENCE: Acomica-X-1

CURRENT APPLICATION NUMBER: US/09/864,761

CURRENT FILING DATE: 2001-05-23

PRIOR APPLICATION NUMBER: US 60/180,312

PRIOR PILING DATE: 2000-02-04

PRIOR FILING DATE: 2000-05-26

PRIOR APPLICATION NUMBER: US 60/207,456

PRIOR APPLICATION NUMBER: US 09/632,366

PRIOR APPLICATION NUMBER: GB 24263.6

PRIOR APPLICATION NUMBER: GB 24263.6
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CURRENT FILING DATE: 2001-01-17
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                  PRIOR APPLICATION NUMBER: US 60/236,359
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100.0%; Pr
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100.0%; Pr
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Pred. No.
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o. 81;
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OTHER INFORMATION: MOTHER INFORMATION: E OTHER INFORMATION: S OTHER INFORMATION: S OTHER INFORMATION: E OTHER INFORMATION: E
                                                            ; ORGANISM: Homo sapiens US-09-804-156-20
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                                                                                              NUMBER OF SEQ ID NOS: 38
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 20
LENGTH: 69
TYPE: PRT
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Best Local (
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SEQ ID NO 45197
Query Match
Best Local Similarity
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CURRENT FILING DATE: 2001-03-13
PRIOR APPLICATION NUMBER: 60/189,025
PRIOR FILING DATE: 2000-03-14
                                                                                                                                                                                                                                                                                   APPLICANT: Shi et al. TITLE OF INVENTION: Serine protease Polynucleotides, Polypeptides, and FILE REFERENCE: PT005P4
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PRIOR APPLICATION NUMBER: PCT/US01/00661
PRIOR FILING DATE: 2001-01-30
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PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: US 09/774,203
PRIOR FILING DATE: 2001-01-29
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APPLICATION NUMBER: PCT/US01/00665
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EXPRESSED IN PLACENTA, SIGNAL = 0.83

EXPRESSED IN ADULT LIVER, SIGNAL = 0.83

EXPRESSED IN FETAL LIVER, SIGNAL = 0.83

EXPRESSED IN BONE MARROW, SIGNAL = 0.85

EXPRESSED IN BRAIN, SIGNAL = 0.81

SWISSPROT HIT: P26807, EVALUE 2.00e+00

EST_HUMAN HIT: AW438701.1, EVALUE 1.90e+00
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  Score !
  5; DB 1
1. No. 86;
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lo. 84;
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                                                                                                         RESULT 38
US-09-925-302-509
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                                                                                                                                                                                                                                                                                                ; LENGTH: 69
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-764-847-888
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Best Local Similarity
Thes 5; Conserve
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; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-804-156-37
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US-09-804-156-37
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US-09-764-847-888
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PRIOR FILING DATE: 2000-03-14
NUMBER OF SEQ ID NOS: 38
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 37
LENGTH OF SEQ ID NO 37
                                                             Sequence 509, Application US/09925302 Patent No. US20020044941A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 888, Application US/09764847 Patent No. US20020132767A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                            SOFTWARE: PatentIn Ver. SEQ ID NO 888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Shi et a
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                                                                                                                                                                                                                                     Matches
APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies
FILE REFERENCE: PA104
CURRENT APPLICATION NUMBER: US/09/925,302
                                                                                                                                                                                                                                                                                                                                                                                          Prior application data removed - consult PALM NUMBER OF SEQ ID NOS: 2003
                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/764,847
CURRENT FILING DATE: 2001-01-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Rosen et al. TITLE OF INVENTION: Nucleic Acids, Proteins, FILE REFERENCE: PC009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Serine protease Polynucleotides, Polypeptides, and Antibodies FILE REFERENCE: PT005P4 CURRENT APPLICATION NUMBER: US/09/804,156 CURRENT FILING DATE: 2001-03-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22 VCELN 26
                                                                                                                                                                          47 WLGAP 51
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100.0%;
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Pred. No.
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5. 86;
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5. 86;
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US-09-764-847-592
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                                                                                                                                                                        RESULT 40
                                                                                                          GENERAL INFORMATION:
                                                                                                                      Sequence 33499, Application Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 592
LENGTH: 84
TYPE: PRT
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Matches 5; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE:
NAME/KEY: SITE
LOCATION: (41)
OTHER INFORMATION: X
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NAME/KEY: SITE
LOCATION: (31)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12 NUMBER OF SEQ ID NOS: 896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT FILING DATE: 2001-08-10 PRIOR APPLICATION NUMBER: PCT/US00/05918 PRIOR FILING DATE: 2000-03-08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: PatentIn Ver. 2.0
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                                                                                                                                        Application US/09864761
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; Pred. No.
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GENERAL INFORMATION:
APPLICANT: ROSen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PC009
APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FO
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
FILE REFERENCE: Acomica-X-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/764,847
CURRENT FILING DATE: 2001-01-17
Prior application data removed - consult PALM or
NUMBER OF SEQ ID NOS: 2003
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CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23

APPLICATION NUMBER: US 60/180,312

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RESULT 41
US-09-925-300-1321
; Sequence 1321, Application US/09925300
; Patent No. US20020151681A1
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PRIOR FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LENGTH: 86
TYPE: PRT
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OTHER INFORMATION: EXPRESSED IN HBL100, SIGNAL =
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les 5; Conser
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: PCT/US01/00670 FILING DATE: 2001-01-30
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APPLICATION NUMBER: PCT/US01/00661
FILING DATE: 2001-01-30
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FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00662
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APPLICATION NUMBER: PCT/US01/00668
FILING DATE: 2001-01-30
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APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
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FILING DATE: 2001-01-30
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100.0%; Pr
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ED IN PLACENTA, SIGNAL = 5.6

ED IN BT474, SIGNAL = 2.7

ED IN BONE MARROW, SIGNAL = 8

ED IN BRAIN, SIGNAL = 7.5

ED IN BRAIN, SIGNAL = 7.5

OT HIT: P79103, EVALUE 9.00e-30

AN HIT: W00563.1, EVALUE 5.00e-34
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IN FETAL LIVER, SIGNAL =
IN LUNG, SIGNAL = 20
IN HELA, SIGNAL = 50
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b. 1e+02;
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RESULT 43
US-09-925-300-1795
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Sequence 437, Application US/09764860
Patent No. US20020094953A1
GENERAL INFORMATION:
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                                                                                                                                                                                                       Sequence 1795, Application US/09925300 Patent No. US20020151681A1 GENERAL INFORMATION:
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Best Local Similarity
Matches 5; Conserv
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SOFTWARE: PatentIn Ver. 2.
SEQ ID NO 1321
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APPLICANT: Craig Rosen,
APPLICANT: Steve Ruben
TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies
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                          CURRENT APPLICATION NUMBER: US/09/925,300 CURRENT FILING DATE: 2001-08-10 PRIOR APPLICATION NUMBER: PCT/US00/05988 PRIOR FILING DATE: 2000-03-08 PRIOR APPLICATION NUMBER: 60/124,270 PRIOR FILING DATE: 1999-03-12
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CURRENT APPLICATION NUMBER: US/09/925,300
CURRENT FILING DATE: 2001-08-10
PRIOR APPLICATION NUMBER: PCT/US00/05988
PRIOR FILING DATE: 2000-03-08
PRIOR APPLICATION NUMBER: 60/124,270
PRIOR FILING DATE: 1999-03-12
                                                                                                                                             APPLICANT: Craig Rosen,
APPLICANT: Steve Ruben
TITLE OF INVENTION: Nucleic Acids, Proteins and Antibodies
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and
FILE REFERENCE: PC008
                                                                                                                                      FILE REFERENCE: PA101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Prior application data removed .
NUMBER OF SEQ ID NOS: 1198
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SOFTWARE: PatentIn Ver.
                 NUMBER OF SEQ ID NOS: 1890
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; ORGANISM: Oryza sativa US-09-873-880-14
                                 PRIOR FILING DATE: July 28, 1999
PRIOR APPLICATION NUMBER: 60/094,839
PRIOR FILING DATE: July 31, 1998
NUMBER OF SEQ ID NOS: 42
SOFTWARE: Microsoft Office 97
SEQ ID NO 14
LENGTH: 97
TYPE: PRT
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LOCATION: (63)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
NAME/KEY: SITE
LOCATION: (94)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
US-09-764-877-1490
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; ORGANISM: Homo sapiens
US-09-925-300-1795
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US-09-873-880-14
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US-09-764-877-1490
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Best Local S
Matches 5
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SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 1490
LENGTH: 94
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APPLICANT: Rosen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
FILE REFERENCE: PC005
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Best Local Similarity 100.
Matches 5; Conservative
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LENGTH: 92
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                                                                                                                                                                         APPLICANT: Sewalt, Vincent
APPLICANT: Falco, S. Carl
APPLICANT: Allen, Stephen M.
TITLE OF INVENTION: GLYCINE METABOLISM ENZYMES
FILE REFERENCE: BB1192 US CIP
CURRENT APPLICATION NUMBER: US/09/873,880
CURRENT FILING DATE: 2001-06-04
PRIOR APPLICATION NUMBER: 09/363,321
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CURRENT FILING DATE: 2001-01-17
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ORGANISM: Homo sapiens
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53 YPDPL 57
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mes 5; Conservative
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US-08-373-935-1
US-08-373-935-7
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                                                                                PATENT NO. 5434245

APPLICANT: KOYAMA, NOBUTO; KIMIZURA, FUSAO;

TITLE OF INVENTION: POLYPEPTIDES AND METHO
THE SAME

NUMBER OF SEQUENCES: 10
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/993,980
FILING DATE: 16-DEC-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: B55,473; 444,786
FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
FILING DATE: 01-DEC-1989
FILING DATE: 01-DEC-1989
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5434245-1
;Patent NO. 5434245
; APPLICANT: ROYAMA, NO.
; TITLE OF INVENTION: F
;THE SAME
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5434245-2
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Best Local Similarity
Watches 49; Conserve
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Sequence 12, Appl	Sequence 125, App	Sequence 125, App	Sequence 6, Appli	Sequence 6, Appli	Sequence 4, Appli	Sequence 18, Appl		Sequence 10, Appl	Sequence 138, App	Sequence 138, App	Sequence 138, App	 Sequence 5, Appli 	Sequence 5, Appli	Sequence 50, Appl	Sequence 49, Appl	Sequence 3, Appli	Sequence 3, Appli

ALIGNMENTS

APPLICATION NUMBER: US/07/993,980 FILING DATE: 16-DEC-1992 PRIOR APPLICATION DATA: APPLICATION NUMBER: 855,473; 444,786 FILLING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786 FILING DATE: 01-DEC-1989 NUMBER OF SEQUENCES: 10 CURRENT APPLICATION DATA: 100.0%; ilarity 100.0%; Conservative 0 NOBUTO; KIMIZUKA, POLYPEPTIDES ANI 0; Score 49; DB Pred. No. 5.8 0; Mismatches AND FUSAO; KATO, METHOD FOR 5.8e-45; thes 0; DB 6; IKUNOSHIN Length 49; Indels. 0; Gaps

100.0%;

Score 49; Pred. No.

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Length 50;

FUSAO; KATO, D METHOD FOR

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PAPPLICANT: KOYAMA, NOBUTO; KIMIZUKA, FUSAO; KATO, IKUNOSHIN TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR PREPARING
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APPLICANT: KOYAMA, NOBUTO; KIMIZUKA, FUSAO; KATO, IKUNOSHIN

TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR PREPARING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5434245-3
                                                               ;USING THE SAME
                                                                               ; FOR PREPARING THE SAME AND METHOD
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                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO:4:
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                                                                    Patent No. 5164483

Patent No. 5164483

APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose
TITLE OF INVENTION: Y-CARBOXYGLUTAMATE DERIVATIVE METHOD
TO THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALCIN
                                                                                                                                                                                                                                                                        Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 49; Conservative C
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Best Local :
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                NUMBER OF SEQUENCES: 3
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/07/993,980 FILING DATE: 16-DEC-1992 PRIOR APPLICATION DATA:
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CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 855,473; 444,786 FILING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786 FILING DATE: 01-DEC-1989
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 FILING DATE:
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31-AUG-1990
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                  US/07/575,639
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01-DEC-1989
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Pred. No. 5.9e-45;
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Pred. No. 6e-45;
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RESULT 6
5164483-2
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5164483-3
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                                                                                                           5168041-1; Patent No.
                                                                                                                                                                                                                                                                                             5164483-3
                                                                                                                                                                                                                                                                                                                                                                                       FOR PREPARING THE SAME AND METHOD USING THE SAME
;SEQ ID NO:1:
                                     APPLICANT: BERGMANN, ANDREAS E.
TITLE OF INVENTION: METHOD FOR THE DETERMINATION
OSTEOCALCIN IN HUMAN SERUM OR PLASMA
NUMBER OF SEQUENCES: 2
CURRENT APPLICATION DATA:
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Best Local S
Matches 25
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APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose
TITLE OF INVENTION: Y-CARBOXYCLUTANATE DERIVATIVE METHOD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 31-AUG-1990
SEQ ID NO:2:
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LENGTH: 110
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Best Local
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Best Local Similarity
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CURRENT APPLICATION DATA:
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APPLICATION NUMBER: US
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hes 25; Conserva
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           FILING DATE:
                           APPLICATION NUMBER:
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25; Conservative
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100.0%; Pr
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100.0%; Pred. No.
                           US/07/416,728
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0; Mismatches
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Pred. No.
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1.1e-19;
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1.1e-19;
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hes 0;
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RESULT 10
US-08-447-175A-13
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US-08-796-598-13
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; MOLECULE TYPE:
US-08-796-598-13
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                            Sequence 13, Application US/08447175A Patent No. 5869240 GENERAL INFORMATION:
                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 13; Conserv
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TELEFAX: (617) 248-71
INFORMATION FOR SEQ ID NO:
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                                                                                                                                                                                                                                                                                                                SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (617) 248-7000
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APPLICATION NUMBER: 1
FILING DATE: 19-MAY-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING TITLE OF INVENTION: POLYMERS USING MASS SPECTROMETRY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: PATTERSON, DALE APPLICANT: TARR, GEORGE E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES:
APPLICANT: PATTERSON, DALE H.
TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 07-FEB CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: FLYNN ESq., Kerry A. REGISTRATION NUMBER: 33,693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: Boston
STATE: MA
                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOFTWARE:
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                                                                                                                                    1 GAPVPYPDPLEPR 13
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o. 5827659
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SYSTEM: PC-DOS/MS-DOS
PATENTIN Release #1.0, Version #1.30
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linear
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'ON: 435
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100.0%; Pr
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100.0%; Pred. No.
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Pred. No.
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US-08-943-915-6
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Best Local :
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTORNEY_AGENT INFORMATION:
NAME: RAUSCHENBACH, KUIT
REGISTRATION NUMBER: 40,137
REFERENCE_/DOCKET NUMBER: SYP-
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
                                                                                                                                                                                                                                                                   APPLICANT: Itoh, No. 5998170uyukı
APPLICANT: Martin, Frank
APPLICANT: Danilenko, Dimitry
TITLE OF INVENTION: A FIBROBLAST GROWTH FACTOR
RUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
                                                                     SOFTWARE: PatentIn Rel CURRENT APPLICATION DATA:
                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                STREET: 184v CITY: Thousand Oaks
STATE: California
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
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ATTORNEY/AGENT INFORMATION
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                  FILING DATE:
CLASSIFICATION:
                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
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nes 13; Conserv
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TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                 ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/0: FILING DATE: 19-MAY-1995
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ZIP: 02110
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Patent Administrator - Testa, Hurwitz ADDRESSEE: Thibeault, LLP
                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                 ADDRESSEE:
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                                                                                                                                                                               91320-1789
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1840 DeHavilland Drive
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nilarity 100.0%; Pred. No.
Conservative 0; Mismatc
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linear
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                                                      US/08/943,915
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                                                                                       ; MOLECULE TYPE: protein US-08-881-037-112
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US-08-881-037-112
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                              Matches
                                            Query Match
Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 112,
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
                                                                                                                                                                                                                               NAME: KONSKI, ANTOINETEE F.
REGISTATION NUMBER: 34,202
REFERENCE/DOCKET NUMBER: 20
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650) 813-5600
                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 01
FILING DATE: 18-MAY-1995
CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IHM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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CITY: Palo Alto
CTATE: CA
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ADDRESSEE: Morrison & Foerster
STREET: 755 Page Mill Road
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 805.447.4112
TELEPAX: 805.447.1090
                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Konski, Antoinette
                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Glick, Gary D.
APPLICANT: Swanson, Patrick C.
TITLE OF INVENTION: DNA BINDIN
NUMBER OF SEQUENCES: 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRANDEDNESS: Sir
TOPOLOGY: linear
                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                 TELEFAX: (650) 494-0792
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   7 GAPVPYPDPLEPR 19
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                                              Similarity
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                            26.5%; Score 13;
100.0%; Pred. No.
tive 0; Mismatc
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                               Mismatches
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                       DB 3; LC
3. 1.6e-07;
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                                                                  ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-652-816A-43
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                 Query Match
Best Local
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 Matches
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                                                                                                                                                                  INFORMATION FOR SEQ ID NO:
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APPLICATION NUMBER: GB 9125579.4
FILING DATE: 02-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                    SEQUENCE CHARACTERISTICS:
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APPLICATION NUMBER:
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APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 24-MAR-1992
PRIOR APPLICATION DATA:
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PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: OSDOULU, APPLICANT: Allen, DJ
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                                                                                                                 TYPE: amino acids
                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 01-JU
                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
Local Similarity les 13; Conserv
                                                                                                                                                                                                                                      REGISTRATION NUMBER:
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                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                  NAME: David W. Clough
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
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 Conservative
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                                                                                                                                                                                     312-474-6300
                                                                                                                                                                                                                                                                                                                                                                                                                                     UMBER: GB 9525004.9
07-DEC-1995
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23-SEP-1992
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ER: 28111/33308
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                 Score 13; DB 2;
; Pred. No. 4.6e-
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 4.6e-07;
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Sequence 5, Application US/09142974B Patent No. 6451995

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US-08-466-120-2
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SOFTWARE: Par
SEQ ID NO 5
FRIGTH: 13
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TITLE OF INVENTION: Single Chain FV Constructs of Anti-Ganglioside GD2
TITLE OF INVENTION: Antibodies
FILE REFERENCE: MSK.P-013-USNP
CURRENT APPLICATION NUMBER: US/09/142,974B
CURRENT FILING DATE: 1998-09-18
PRIOR APPLICATION NUMBER: PCT/US97/04427
PRIOR APPLICATION NUMBER: PCT/US97/04427
PRIOR FILING DATE: 1997-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence FEATURE:
                                 FILING DATE: 24 JUN 94
ATTORNEY/AGENT INFORMATION:
NAME: FERRARO, GREGORY D
                                                                APPLICATION NUMBER: US/08/466,120
FILING DATE: June 6, 1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/US94/07266
FILING DATE: 24 JUN 94
                                                                                                                                                                       COMPUTER: IBM PS/2
OPERATING SYSTEM: MS-DOS
SOFTWARE: WORD PERFECT 5.1
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 INCH DISKETTE
                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
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REFERENCE/DOCKET NUMBER:
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NEW JERSEY
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                               FERRARO, GREGORY D.
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Larson, Steven M.
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E: CECCHI, STEWART
6 BECKER FARM ROAD
                                                                                                                                                                                                                                                                                                       USA
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100.0%; Pr
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325800-354
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                                                                                                                                                                                                                                                                                                                                                                                            BAIN, GILFILLAN
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Query Match
Best Local Similarity
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PCT-US94-07266-2
                                                                                                         PCT-US94-07266-2
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INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                TELEFAX: 201-994-1744
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: FERRARO, GREGORY D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: CAO, ET TITLE OF INVENTION:
                                                                                                                    STRANDEDNESS:
TOPOLOGY: LINEAR
MOLECULE TYPE: PROTEIN
                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION: 201-994-1700
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MEDIUM TYPE: 3.5 INCH DISKETTE
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                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PS,
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: Concus CLASSIFICATION:
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                                                                                                                                                            LENGTH: 433 AMINO ACIDS TYPE: AMINO ACID
                                                                                                                                                                                                                                                        REGISTRATION NUMBER: 36 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 6 BECKI
CITY: ROSELAND
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4 WLGAPVP 10
                       5 WLGAPVP 11
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6 BECKER FARM ROAD
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                                                  Conservative
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100.0%;
                                                                14.3%; Score 7; 1
100.0%; Pred. No.
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Pred. No.
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5. 7.4;
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US-08-333-358-8
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Best Local S
Matches 7
                                                                          APPLICANT: EVANS Ph.D., RONALU M.
APPLICANT: EVANS Ph.D., RONALU M.
APPLICANT: MANGELSDORF Ph.D., DAVID J.
APPLICANT: ORG MS., ESTELITA S.
APPLICANT: ORG Ph.D., ANTHONY E.
APPLICANT: BORGMEYER Ph.D., UWE K.
APPLICANT: TOTTERE Ph.D., VINCENT NMN
                                                                                                                                                                                                                       Sequence 8, Application US/08463694 Patent No. 5696233
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APPLICANT: MANGELSDORF Ph.D., DAVID J.
APPLICANT: ONG MS., ESTELITA S.
APPLICANT: ORO Ph.D., ANTHONY E.
APPLICANT: GORGMEYER Ph.D., VINCENT MMN
APPLICANT: GIGUERE Ph.D., VINCENT MMN
APPLICANT: YAO Mr., TSO-PANG MMN
TITLE OF INVENTION: NOVEL RECEPTORS
                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: EVANS
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INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REGISTRATION NUMBER: 31192
REFERENCE/DOCKET NUMBER: P3
TELECOMMUNICATION INFORMATION:
                                                     APPLICANT: YAO Mr., TSO-PANG NMN
TITLE OF INVENTION: NOVEL RECEPTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US,
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MEDIUM TYPE: Floppy disk
                    CORRESPONDENCE ADDRESS:
                                        NUMBER OF SEQUENCES:
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APPLICATION NUMBER:
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OPERATING SYSTEM: PC-DOS/MS-DOS
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ZIP: 90071-2921
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION: 435
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5. 5571696
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444 So. Flower
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Pretty, Schroeder, Brueggemann & Clark
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100.0%; Pred. No.
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Best Local :
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                    CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/694,501
FILING DATE: 07-AUG-1996
                                                                                                                                                                             ZIP: 90071-2921 COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                          NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                         APPLICANT: ORO Ph.D., ANTHONY E.
APPLICANT: BORGMEYER Ph.D., VLINCENT MMN
APPLICANT: GIGUERE Ph.D., VLINCENT MMN
APPLICANT: YAO MI., TSO-PANG MMN
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TELECOMMUNICATION INFORMATION:
TELEPHONE: (619) 535-9001
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ATTORNEY/AGENT INFORMATION:
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CURRENT APPLICATION DATA:
                  PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: NOVEL RECEPTORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 440 amino acids TYPE: amino acid TOPOLOGY: linear
                  UATE: 07-AUG-1996
CLASSIFICATION: 435
                                                                                                 OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
                                                                                                                                           COMPUTER:
                                                                                                                                                            MEDIUM TYPE:
                                                                                                                                                                                                                  COUNTRY:
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APPLICATION NUMBER:
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MANGELSDORF Ph.D., DAVID J.
ONG MS., ESTELIAS.
ONG MS., ANTHONY E.
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                                                                                                                         E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
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05-JUN-1995
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US/08/333,358
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##WEIH: 440 amino acids
#TYPE: amino acid
#TOPOLOGY: linear
#MOLECULE TYPE: protein
US-08-694-501-8
                                                            ; MOLECULE TYPE: protein US-08-373-935-1
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US-08-373-935-1
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                                  Query Match
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INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
                                                                                                                                                   INFORMATION FOR SEQ ID NO: 1:
                                                                                                                                                                                                            CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Reiter, Stephen E.
REGISTRATION NUMBER: 31,192
REFERENCE/DOCKET NUMBER: P41
                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 447 amino acids
                                                                                                                                                                                                                                                                                                                  SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                TELEPHONE: 619-546-4737
                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Evans, Ronald M.
APPLICANT: Mangelsdorf, David J.
APPLICANT: Willy, Patricia J.
                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 444 CONTY: Los Angeles
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                           MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                           TYPE: amino acid
TOPOLOGY: linear
    Local Similarity
les 7; Conserva
                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Reiter Ph.D., Stephen E. REGISTRATION NUMBER: 31192 REFERENCE/DOCKET NUMBER: P31 8
                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/07/761,068
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                E: Pretty, Schroeder, Brueggemann & Clark 444 South Flower Street, Suite 2000
                                                                                                                                                                  619-546-4737
                                                                                                                                                                                                                                                                                                                                                                                                                        USA
    Conservative
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               14.3%;
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                 Score 7;
Pred. No
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                                                                                                                                                                       Sequence 28, Application US/08493071
Patent No. 6127149
GENERAL INFORMATION:
APPLICANT: Hirai, Yohei
                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
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TELEX: 200154
INFORMATION FOR SEQ ID NO:
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TELECOMMUNICATION INFORMATION: 617/542-5070
COMPUTER READABLE FORM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION: NAME: Fraser, Janis K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 225 Franklin Street
                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                             APPLICANT: Koshida, Shogo
APPLICANT: Oka, Yumiko
                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Scaglion
               COUNTRY: UZIP: 22314
                                         CITY: ALEXANDRIA
STATE: VA
                                                                                                                                                                                                                                                                                                                                                       Local Similarity
nes 6; Conserv
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TOPOLOGY: li
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OPERATING SYSTEM: Windows
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                      STREET:
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                                                                      99 CANAL CENTER PLAZA, SUITE 300
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0; Mismatches
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RESULT 23
US-08-791-522-4
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INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 12 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 4, Application US/08791522 Patent No. 5935817
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INFORMATION FOR SEQ ID NO: 4: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                 OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: 703-684-1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Price, Robert L.
REGISTRATION NUMBER: 22,
                                                                                                                                                                               APPLICATION NUMBER: US/08/791,522
FILING DATE: Filed Herewith
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
                                                REFERENCE/DOCKET NUMBER: PF
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Goli, Surya K.
TITLE OF INVENTION: NOVEL HUMAN CYSTATIN-LIKE
TITLE OF INVENTION: PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: peptide
                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                       CITY: Palo Alto
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity tes 6; Conserv
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                                                                                               NAME: Billings, Lucy J. REGISTRATION NUMBER: 36,749
                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                           COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                            3174 Porter Drive
                                 415-845-4166
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                     IBM Compatible
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                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Bandmau, Carline Republicant: Goli, Surya K.
APPLICANT: Goli, Surya K.
APPLICANT: HOVENTION: NOVEL HUMAN CYSTATIN-LIKE
                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Billings, Lucy J.
REGISTRATION NUMBER: 36,749
                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: FastSEQ for Windows Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM: MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: Since TOPOLOGY: linear IMMEDIATE SOURCE:
                                                                                                                                                     TOPOLOGY: line
IMMEDIATE SOURCE:
                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: 415-855-0555
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CLONE: 118195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Palo Alto
31
                                                                                                                          LIBRARY: GenBa
CLONE: 118195
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                          6 LGAPVP 11
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                                                                                                                                                                                                           139 amino acids
                                                                                                                                                                                                                                                        415-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
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                                                      Conservative
                                                                                                                                           GenBank
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IBM Compatible
                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Diskette
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                                                                   12.2%; Score 6; 100.0%; Pred. No.
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                                                      mismatches
                                                                   DB 3;
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RESULT

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US-08-457-175-2
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                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                             Patent No.
                                                                                                                                                              Sequence 2, Application US/08457175 Patent No. 5693470
                                                                                                                                                                                                                                                                                                                          Matches
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                                                                                                                              GENERAL INFORMATION: APPLICANT: Vogels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 202.508.9299
TELEX: 197430 BBMB UT
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 202.508.9100
                                                                                                                                                                                                                                                                                                                                                                                                         ORIGINAL SOURCE: ORGANISM: Hom
                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: protein
HYPOTHETICAL: YES
ANTI-SENSE: NO
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CLASSIFICATION: 530
PRIOR APPLICATION DATA:
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MEDIUM TYPE: Floppy
                                                           TITLE OF INVENTION: Mutator Gene and Hereditary
TITLE OF INVENTION: No. 5693470-Polyposis Colorectal Cancer
                                                                            APPLICANT: Kinzler, Kenneth W.
APPLICANT: de la Chappelle, Albert
TITLE OF INVENTION: Mutator Gene a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US 0:
FILING DATE: 02-DEC-1993
ATTORNEY/AGENT INFORMATION:
                              CORRESPONDENCE ADDRESS
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TITLE OF INVENTION: Mutator Gene and Hereditary
TITLE OF INVENTION: No. 5591826-Polyposis Colorectal Cancer
                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
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APPLICANT: de la Chappelle, Al
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STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Kagan, Sarah A. REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Washington
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   STREET:
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                  DDRESSEE:
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5591826
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1001 G Street, N.W.
1001 G Street, N.W.
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100.0%; F1
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Pred. No.
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               McKie,
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                and Beckett
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US-08-457-175-2
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Patent No. 6048701
GENERAL INFORMATION:
APPLICANT: The Johns Hopkins Un
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
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TELEX: 197430 BBMB UT
INFORMATION FOR SEQ ID NO:
                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                       APPLICANT: The Johns Hopkins University
TITLE OF INVENTION: Antibody Detection of Mismatch Repair
TITLE OF INVENTION: Protein
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: 202.508.9100 TELEFAX: 202.508.9299
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CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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                                                                                                                                                                                COUNTRY: U.S.A. ZIP: 20001-4597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TYPE: amino acid
STRANDEDNESS: sir
TOPOLOGY: linear
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                                                   FILING DATE
                                                                                                                                                                                                                  CITY: Washington STATE: D.C.
                                                                  APPLICATION NUMBER:
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1001 G Street, N.W.
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linear
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02-DEC-1993
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100.0%; Pred. No.
   08/480,351
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                                                                  US/08/709,784
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o. 1.6e+02;
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SEQ ID NO 3
LENGTH: 934
Sequence 3, Application US/09650855
Patent No. 6365355
GENERAL INFORMATION:
APPLICANT: MCCUTHEN-MALONEY, SANDRA
APPLICANT: LAWRENCE LIVERMORE NATIONAL LABORATORY
APPLICANT: LAWRENCE LIVERMORE NATIONAL LABORATORY
TITLE OF INVENTION: MUTATIONS, DAS SEQUENCE VARIATIONS, DNA DAMAGE AND DITTLE OF INVENTION: MUTATIONS, DAS SEQUENCE VARIATIONS, DNA DAMAGE AND DITTLE OF INVENTION: MISMATCHES
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TITLE OF INVENTION: POLYMORPHISMS, DNA SE
TITLE OF INVENTION: DNA DAMAGE AND DNA MI
FILE REFERENCE: IL-10689
CURRENT APPLICATION NUMBER: US/09/651,656
CURRENT FILING DATE: 2000-08-29
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APPLICANT: LAWRENCE LIVERMORE NATIONAL LABORATORY
TITLE OF INVENTION: DETECTION AND QUANTITATION OF SINGLE NUCLEOTIDE
TITLE OF INVENTION: POLYMORPHISMS, DNA SEQUENCE VARIATIONS, DNA MUTI
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INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
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REGISTRATION NUMBER: 32,141
REFERENCE/DOCKET NUMBER: 1107
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-508-9100
TELEPAX: 202-508-929
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: protein HYPOTHETICAL: YES ANTI-SENSE: NO
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les 6; Conserv
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mes 6; Conserv
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STRANDEDNESS: single
TOPOLOGY: linear
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100.0%; Pr
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100.0%; Pr
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0; Mismatches
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                                                                                                                                                                                                                                                                                            No. 1.6e+02;
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o. 1.6e+02;
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; SOFTWARE: PatentIn Ver.
; SEQ ID NO 3
; LENGTH: 934
; TYPE: PRT
; ORCANISM: Homo sapiens
US-09-650-855-3
Qy
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Best Local Similarity
Thehes 6; Conserve
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                               Query Match
Best Local S
Matches 6
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CURRENT FILING DATE: 2000-08-29
PRIOR APPLICATION NUMBER: 60/192,764
PRIOR FILING DATE: 2000-03-28
NUMBER OF SEQ ID NOS: 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                    TELEPHONE: 617-523-340
TELEFAX: 617-523-6440
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Huganir, Richard L.
APPLICANT: Dong, Hualing
TITLE OF INVENTION: THERAPEUTIC
TITLE OF INVENTION: GRIP-RELATER
NUMBER OF SEQUENCES: 105
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                 NAME: COILESS, Peter F.
REGISTRATION NUMBER: 33,860
REFERENCE/DOCKET NUMBER: 48:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-523-3400
                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/041,016
FILING DATE: 19-MAR-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER READABLE FORM:
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COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/OFFILING DATE: 19-MAR-1998
 15 PLEPRR 20
                                                                                                                                    TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: 130 | CITY: Boston
                                                                                                                                                                 LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
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                                 l Similarity
6; Conserv
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                                                                                                                                                                   1050 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 Water Street
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                                  Conservative
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                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           THERAPEUTIC USES OF GRIP AND GRIP-RELATED MOLECULES
                               12.2%; Score 6; DB: 100.0%; Pred. No. 1.1 tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12.2%; Score 6; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                        US/09/045,632
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                           DB 3; L. No. 1.8e+02; 0;
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No. 1.6e+02;
0;
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                                                                  Length 1050;
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US-09-045-632-50
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GENERAL INFORMATION:
                                                                                                                                                                                                        Sequence 5, Application US/07642734C Patent No. 5824513 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                           Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/09/045,632
FILING DATE: 19-MAR-1998
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 60/041,016
FILING DATE: 19-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: Corless, Peter F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 617-523-6440
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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                                                              APPLICANT: Katz, L
APPLICANT: Donadio, S
APPLICANT: Mcalpine, J
APPLICANT: Mcalpine, J
B
TITLE OF INVENTION: Recombinant DNA Method for Producing
TITLE OF INVENTION: Erythromycin Analogs
TUMBER OF SEQUENCES: 27
CORRESPONDENCE ADDRESS
CORRESPONDENCE ADDRESS
CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Corless, Peter F.
REGISTRATION NUMBER: 33,860
REFERENCE/DOCKET NUMBER: 48147/1699-CIP
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-523-3400
TELEPAX: 617-523-6440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRANDEDNESS:
TOPOLOGY: linear
MOLECULE TYPE: protein
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: THERAPEUTIC USES OF GRIP AND TITLE OF INVENTION: GRIP-RELATED MOLECULES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS
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                                                                                                                                                                                                                                                                                                                                           864 PLEPRR 869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                              15 PLEPRR 20
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Local Similarity 100.0%; Pred. Notes 6; Conservative 0; Misman
                                     STREET:
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     CITY:
                     STREET:
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                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
Abbott Park
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                     Park Rd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1050 amino acids
                                     Abbott Laboratories D377/AP6D-2 One Abbott
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            USA
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Dong, Hualing
                                                      Edward H. Gorman
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Query Match
Best Local Similarity
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US-08-439-009A-5
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INFORMATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
                                                                   INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                    COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/439,009
FILING DATE: 11-MAY-1995
                              SEQUENCE CHARACTERISTICS:
LENGTH: 3170 amino acids
                                                                              REGISTRATION NUMBER: 40,943
REFERENCE/DOCKET NUMBER: 49:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 847-938-3137
                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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NAME: Danckers, Andreas M
REGISTRATION NUMBER: 32652
REFERENCE/DOCKET NUMBER: 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compation operating SYSTEM: PC-DC SOFTWARE: Patentin Relaction DATA:
                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Casuto, Dianne
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Method of Directing Biosynthesis of TITLE OF INVENTION: Specific Polyketides
NUMBER OF SEQUENCES: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Katz, L
APPLICANT: Mcalpine, J
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                  FILING DATE: 11-MAY-1995
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                   STREET: Abbott Lai
STREET: Park Rd
CITY: Abbott Park
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MEDIUM TYPE: Floppy disk
TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                60064-3500
                amino acid
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SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Steven F. Weinstock
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100.0%; Pred. No.
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                                                                                                                      4952.US.D1
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. 4.8e+02;
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TITLE OF INVENTION:

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                                                                                                        RESULT 35
US-09-062-451-138
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                                                                                                                                                                                                                                                                                          ; SEQUENCE DESCRIPTION: SEQ ID NO: 138: US-08-991-789A-138
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US-08-991-789A-138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 138, Applicat Patent No. 6225054 GENERAL INFORMATION:
                                                                          Sequence 138, Application US/09062451 Patent No. 6344550
                                                                                                                                                                                                                                  Matches
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                                                                                                                                                                                                                                                            Query Match
                                            GENERAL INFORMATION: APPLICANT: Frudak
                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: 138:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2884 LADHIG 2889
                            APPLICANT:
              APPLICANT:
CITLE OF
                                                                                                                                                                                                                               Local Similarity hes 5; Conserv
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                                                                                                                                                                      3 QEAYR 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/08/991,789A
FILING DATE: 11-Dec-1997
CLASSIFICATION: **CUnknown>
ATTORNEY_AGENT INFORMATION:
NAME: POTTER: Jane E. R.
REGISTRATION NUMBER: 33,332
REGISTRATION NUMBER: 33,332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 210121.419C3 TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: Seed IF
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Seattle
STATE: Washington
                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (206)
                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 9 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (206)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/08991789A
              Smith, John M. Reed, Steven G.
                                                                                                                                                                                                                                 Conservative
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                                          Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                      amino acid
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100.0%;
COMPOSITIONS AND METHODS FOR THE
                                                                                                                                                                                                                                               100.0%;
                                                                                                                                                                                                                                                             10.2%;
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Pred. No.
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b. 4.8e+02;
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2e+05;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 138, Application US/09598326 Patent No. 6423496 GENERAL INFORMATION:
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Best Local
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TELEFAX: (206) 682-60
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
LENGTH: 9 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTORNEY/AGENT INFORMATION:
NAME: Mak1, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 21
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
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                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/598,326
FILING DATE: 20-Jun-2000
CLASSIFICATION: <Unknown>
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: US/0
FILING DATE: 04-APR-1997
CLASSIFICATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
ADDRESSEE: Seed In
                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: COMPOSITIONS AND METHODS TREATMENT AND DIAGNOSIS C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Frudakis, Tony N.
                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
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5; Conserv
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                                                                                                                                                                                                                                                                            STATE: Washington
                                                                                                                                                                                                                                                                                                   CITY: Seattle
                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Seed Intellectual Property Law Group PLLC STREET: 701 Fifth Avenue, Suite 6300
                 NAME: Potter, Jane E.R. REGISTRATION NUMBER: 33
                                                                                                                                                                                                                                             ZIP: 98104-7092
                                                                                                                                                                                                                                                               COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Washington
REFERENCE/DOCKET NUMBER: 210121.419D1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                  John M
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US-08-247-809A-10
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Best Local
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APPLICANT: Peter H. Schreier; Klaus Stenzel; Gunter Adam;
APPLICANT: Edgar Maiss
                                                                                                                                                                                 INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 12 amino acids
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                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: Bayer 9049-KGB TELECOMMUNICATION INFORMATION: TELEPHONE: (914) 332-1700
                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/08/247,809A
FILING DATE: May 23, 1994
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION UMBER: P 43 178 45.6 (Germany)
FILING DATE: May 28, 1993
ATTORNEY/AGENT INFORMATION:
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                                                                                                                                     MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOFTWARE: WordPerfect 5.1 CURRENT APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: DEOXYRIBONUCLEIC ACIDS NUMBER OF SEQUENCES: 18
                           13 PDPLE 17
                                                                                                                                                                                                                                                                                                        NAME: Kurt G. Briscoe
REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDIUM TYPE: Diskette, 3.50 inch, MEDIUM TYPE: storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY: U.S.A. ZIP: 10591-5144
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                                                                          Local Similarity
                                                                                                                                                     TOPOLOGY:
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                                                                                                                                                                 amino acid
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                                                                                                                                                                                                                                                (914) 332-1844
                                                           Conservative
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Pred. No
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o. 2e+05;
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RESULT 39
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Best Local 9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: DE 43178456 FILING DATE: 28-MAY-1993 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 08/247,809 FILING DATE: 23-MAY-1994 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Peter H. SCI
APPLICANT: Edgar Maiss
TITLE OF INVENTION: DEV
                                                                                    TITLE OF INVENTION: HETEROGENEOUS PROTEOLIPID PEPT:
TITLE OF INVENTION: 139-151-SPECIFIC T CELL CLONES
NUMBER OF SEQUENCES: 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 33,141
REFERENCE/DOCKET NUMBER: Bayer 9049.1-KGB
TELECOMMUNICATION INFORMATION:
TELEPHONE: (914) 332-1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: IFILING DATE: 03-SEPT CLASSIFICATION: 800 PRIOR APPLICATION DATA:
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CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS
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                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
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STATE: New York
COUNTRY: U.S.A.
ZIP: 10591-5144
         STREET: 2 Milit
                                                                                                                                                                                                                                                                                                                                            Local Similarity tes 5; Conserv
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STATE:
                                                                                                                                                                                                                                                                                                            13 PDPLE 17
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                                ADDRESSEE: Hamilton, Br
STREET: 2 Militia Drive
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                              amino acid
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (914)
                                                                                                                        President and Fellows of Harvard College and Eunice Kennedy Shriver VENTION: HETEROGENEOUS PROTEOLIPID PEPTIDE
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                                                   Brook, Smith & Reynolds, P.C
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Mismatches
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COMPUTER READABLE FORM:

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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (617) 861-95. INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: PC
FILING DATE: 19930610
REFERENCE/DOCKET NUMBER: 35,030
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 836-6620
                                                                     APPLICATION NUMBER: JP 4-206854
FILING DATE: 03-AUG-1992
ATTORNEY/AGENT INFORMATION:
NAME: Teskin, Robin L
REGISTRATION NUMBER: 35,030
                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FIND PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/101,041A
APPLICATION NUMBER: US/08/101,041A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: SAJI, Fumitaka
APPLICANT: AZUMA, Chihiro
APPLICANT: KIMURA, Tadashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: HU92-02
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 861-6240
TELEPAX: (617) 861-9540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 07
FILING DATE: JUNE 10, 199
ATTORNEY/AGENT INFORMATION:
NAME: Granahan, Patricia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: AND TITLE OF INVENTION: MED NUMBER OF SEQUENCES: 7 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: linear MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION:
PRIOR APPLICATION DATA:
                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                             STREET: P.O. Box
CITY: Alexandria
STATE: Virginia
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COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: United States ZIP: 22313-1404
                                                                                                                                                                                           CLASSIFICATION:
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                                                                                                                                                                                                            FILING DATE: 03-AUG-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                                                                                           Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Burns, Doane, Swecker & Mathis P.O. Box 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10.2%; Score 5; llarity 100.0%; Pred. No Conservative 0; Misman
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linear
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0, 1992
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                                                               ; TOPOLOGY: 1i; MOLECULE TYPE: US-09-025-706-6
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US-09-025-706-6
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Best Local S
Matches 5
                 Query Match
Best Local 9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
 Matches
                                                                                                                                                                          TELEPHONE: 716-262-364
TELEFAX: 716-262-4133
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                           CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Braman, Susan J
REGISTRATION NUMBER: 34,103
REFERENCE/DOCKET NUMBER: 8765
TELECOMMUNICATION INFORMATION:
TELEPHONE: 716-262-3640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                            SOFTWARE: Patentin Rela
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US,
                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Clark, Richard & APPLICANT: Greiling, Doris APPLICANT: Gailit, James TITLE OF INVENTION: RECOMBITION: RECOMBITION: RESTRACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH: 18 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                              SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                         COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
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es 5; Conservative
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OTHER INFORMATION: /note= "Amino acids 102-119 of the OTHER INFORMATION: oxytocin receptor polypeptide."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY: Peptide LOCATION: 1..18
                                                                                                             STRANDEDNESS
                                                                                                                               TYPE: amino acid
                                                                                                                                             LENGTH:
                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE:
               Local
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Similarity 5; Conserv
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39 State Street
                                                                                                                                               18 amino acids
ilarity 100.0%; E Conservative 0;
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                                                                                                 linear
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10.2%; Score 5; DB
100.0%; Pred. No. 58
Live 0; Mismatches
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100.0%; Pred. No. 58
tive 0; Mismatches
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US-08-602-999A-125
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                                                                                                                                                                                                                                                                                                                                                                                   Matches
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                                                                                                                                                                                                         GENERAL INFORMATION:
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TELEFAX: 716-262-4133
INFORMATION FOR SEQ ID NO:
                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Braman, Susan J
REGISTRATION NUMBER: 34,
REFERENCE/DOCKET NUMBER:
                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
TELEPHONE: 716-262-3640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Clark, Richard A
APPLICANT: Greiling, Doris
TITLE OF INVENTION: FIBRONECTIN PEPTIDES-BASED EXTRACELLULAR
TITLE OF INVENTION: MATRIX FOR WOUND HEALING
                               CORRESPONDENCE ADDRESS:
                                                              TITLE OF INVENTION: SH3 BINDING PEPTIDES AND METHODS OF TITLE OF INVENTION: ISOLATING AND USING SAME
                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: peptide
                                                                                                                                                                                          APPLICANT: SPARKS, Andrew B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS
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                                                   NUMBER OF SEQUENCES:
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nes 5; Conserv
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TOPOLOGY: linear
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                  ADDRESSEE:
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14614-1310
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                                                                                          DER, Channing J. FOWLKES, Dana M. RIDER, James E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18 amino acids
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39 State Street
1155 Avenue of the Americas
                                                                                                                                            QUILLIAM, Lawrence A.
                                                                                                                                                            THORN, Judith M.
                                                                                                                                                                         KAY, Brian K.
                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                           10.2%; 5c.
100.0%; Pr
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/6
FILING DATE: 16-FEB-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 11
TELECOMMUNICATION INFORMATION:
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OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, V
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/602,999A
                                                                                                                                                                                                                                                                                                                                       APPLICANT: RIDER, J
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 20 amino acids
                                                                                                                                                                                                                                                                                                     CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                            CITY: New York
STATE: New York
COUNTRY: U.S.A.
ZIP: 10036-2711
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mer.ex: 66141 PENNIE
                                                                CLASSIFICATION:
                                                                               APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                        STREET:
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les 5; Conserv
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                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
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10036-2711
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                                                                                                                                                                                                                                                                       1155 Avenue of the Americas
                                                                                                                                                                                                                                                                                                        FOWLKES, Dana M.
RIDER, James E.
VENTION: SH3 BINDING PEPTIDES AND METHODS OF VENTION: ISOLATING AND USING SAME
PEQUENCES: 467
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                                                                                                                                                                                                                                                                                                                                                                                                                                   THORN, Judith M.
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US-08-403-378B-12
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Best Local Similarity
Matches 5; Conserva
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                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 3-124688
FILING DATE: 27-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 1-080398
FILING DATE: 30-MAR-1989
PRIOR APPLICATION NUMBER: JP 1-280590
PRIOR APPLICATION NUMBER: JP 1-280590
FILING DATE: 27-OCT-1989
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 1-333241
FILING DATE: 21-DEC-1989
PRIOR APPLICATION NUMBER: JP 1-333241
APPLICATION NUMBER: JP 2-243003
APPLICATION NUMBER: JP 2-243003
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEX: 66141 PENNIE INFORMATION FOR SEQ ID NO: 125:
                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IEB PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
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APPLICANT:
APPLICANT:
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LENGTH: 20 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REGISTRATION NUMBER: 18,872
REFERENCE/DOCKET NUMBER: 17
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 790-9090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: OJIKA, KOSE1
TITLE OF INVENTION: NEUROTROPHIC PEPTIDE DERIVATIVES
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
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APPLICANT:
APPLICANT:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20037-3202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 2100 PEN CITY: WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (212) 790-9090
TELEFAX: (212) 869-9741/8864
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TOJO, SHIN-ICHIRO
KOJIMA, SHIN-ICHI
UEKI, YASUYUKI
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ONO, KEIICHI
AGUI, HIDEO
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FUKUSHIMA, NOBUYUKI
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US 07/758,043
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Search completed: December Job time : 16 secs
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                                                                                                                                      Query Match
Best Local S
Matches 5
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INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: peptide FRAGMENT TYPE: internal ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)293-7060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 27-APR-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP93/01214
FILING DATE: 27-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: BIGGART, WADDELL A
REGISTRATION NUMBER: 24,861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 12-SEP-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0'
FILING DATE: 27-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 22 amino acids
                                                                                                                                                                                                                                                                                     RIGIM: rate ORGANISM: rate Tarther Wistar
                                                                                                                                    Match 10.2%; Score 5; DB: Local Similarity 100.0%; Pred. No. 69 tes 5; Conservative 0; Mismatches
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| 3 LGAPV 7
                                                                                                                                                                                                                           NAME/KEY: Peptide LOCATION: 1..22
                                                                                                                                                                                                                                                                              TISSUE TYPE: hippocampal tissue of brain
                                                                                                                                                                                                                                                                                                                                                                                   TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX:
                                                                                                     6 LGAPV 10
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                                                                                                                                                                                                                                                                                                            rattus norvegicus
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                4, 2002, 15:40:24
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5. 69;
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Gaps

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RESULT 14
AAW34264
ID AAW34
XX AAW34
AC AAW34
XX 23-AE
XX Glu17
XX Glu17
XX Glu11
XX Glu11
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XX Glu11
XX Glu17
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                                                                                                                                                    Query Match
Best Local 9
                                                                                                                                            Matches
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            Glu17-osteocalcin; Gla21-osteocalcin; osteoporosis; human.
                                                                                                                                                                                                                                             Synthetic human osteo:calsin for standard in determn. of natural osteo:calsin - prepd. by introducing gamma-carboxy:glutamic acid as fluorenyl protected gp.
                                   Glu17-osteocalcin peptide #2.
                                                                             AAW34264 standard; peptide;
                                                                                                                                                                                                                                 Claim 2; Page 2; 10pp; Japanese.
                                                                                                                                                                                                                                                                           WPI; 1993-088665/11.
                                                                                                                                                                                                                                                                                                       31-JUL-1991;
                                                                                                                                                                                                                                                                                                                     31-JUL-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gamma-carboxyglutamic acid;
 Homo sapiens
                                                 23-APR-1998
                                                                AAW34264;
                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                   09-FEB-1993.
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Misc-difference
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24
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21
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100.0%; Pr
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0; Mismatches
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                     antibody; bone disorder;
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1.3e-19;
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                                                                                                                                                          Length 49
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The
                    diagnosis;
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AAW34266
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Query Match
Best Local Similarity
Matches 25; Conserv
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                                                                      Modified-site
                                                                                                                                                                                                      osteoporosis;
                                                                                                                                                                                                                     Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                                                                                                 Gla21-osteocalcin peptide #2.
                                                                                                                                                                                                                                                                                23-APR-1998
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                           WO9738309-A1
                                                                                                    Modified-site
                                                                                                                              Key
Modified-site
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10-APR-1996;
16-OCT-1997.
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Modified-site
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96JP-0088608
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21
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                                                                                                                                                                                                                                                                                                                                      peptide;
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                                                       "gamma-carboxyglutamic
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Pred. No.
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1.3e-1
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0;
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97WO-JP01246

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RESULT 16
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Best Local
              peptide (bases 1-20) of human osteocalcin. Additional MADS (USI-C7 and OST-C15) are raised to two C-terminal osteocalcin peptide fragments (comprising bases 43-49 and 35-49 respectively). A sandwich immunoassay is then carried out and musculoskeletal dis-
                                                A monoclonal antibody (MAb), OST-N20, is rapeptide (bases 1-20) of human osteocalcin.
                                                                                                  Immunoassay of human osteocalcin in di
sandwich assay with antibodies raised
and C-terminal sites on osteocalcin
                                                                                                                                           WPI;
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                                                                              Disclosure; fig 1; 80pp; Japanese.
                                                                                                                                                                                                               02-OCT-1989;
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                                                                                                                                                                                                                                                                                             Osteocalcin;
                                                                                                                                                                                                                                                                                                                 Human osteocalcin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kimura
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10-APR-1996;
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          can be diagnosed.
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96JP-0088608.
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89JP-0030003
                                                                                                                                                                                                                                   90WO-JP00155
                                                                                                                                                                                                                                                                                                                fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorders such
                                                                                                                                                                                                                                                                                                                                                                            peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               51.0%;
                                                                                                                                                              Kubota T,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sakakibara
          See also
                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 25; DB Pred. No. 1.3 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  49
                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                              Masuho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         as
                                                                                                                     in diagnostic specimens -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25;
No.
          AAR06631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         osteoporosis
                                                          is raised to this N-terminal
                                                                                                           respectively
                                                                                                                                                              ĸ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 18; 1
1.3e-19;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                           ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  peptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        antibody
                                                                                                            N-terminal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fragments.
disorders,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               fragment, which
                                                                                                                     using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           such
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RESULT 17
AAW01681
XX AAW01681
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XX AAW01681
XX BODE OX AAW01
XX BODE OX A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 20
                                                                                                                                                                  Determn. of osteocalcin in serum or plasma - metal ions to inhibit decompsn. of the protei and diagnosis of bone disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                 (HENN-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAW01681;
                                                                                                                               Disclosure;
                                                                                                                                                                                                                                                                              Bergmann A,
                                                                                                                                                                                                                                                                                                                                                                        29-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                            29-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                01-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DE4340597-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAW01681
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matrix; t
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20;
                                                                                                                                                                                                                                                                                                                                    HENNING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                    BRAHMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                               Column 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                Weckermann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                therapy; diagnosis; assay; metabolic bone disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note=
, 46
                                                                                                                                                                                                                                                                                                                    DIAGNOSTICA
                                                                                                                                                                                                                                                                                                                                                                        93DE-4340597
                                                                                                                                                                                                                                                                                                             BERLIN GMBH.
                                                                                                                                                                                                                                                                                                                                                                                                            93DE-4340597
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42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note<del>=</del>
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40.8%;
                                                                                                                             9pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "underlined
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 osteocalcin; Vitamin K-dependent protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "gamma-carboxyglutamic acid"
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                                                                                                                               German.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 20;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'n
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 11; ; . 1.5e-14;
                                                                                                                                                                                     protein,
                                                                                                                                                                                       with addn.
in, useful i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                       of divalent in therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
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A method for determining concentration of osteocalcin in serum or plasma is improved with addition of divalent metal ions to inhibit decomposition of the protein. The method is useful in therapy and diagnosis of bone disease. The present sequence is osteocalcin (a vitamin K-dependent protein that is a component of the bone matrix, or alternatively bone Gla

decomposition

Gla

protein).

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RESULT 18
AAR26407
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XX
                                                                                                밁
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Best Local S
Matches 20
                                                                                                                             Query Match
Best Local S
Matches 19
                                                                                                                                                                             The sequences given in AAR26407-9 correspond to fragments of human osteocalcin. These fragments were used in the production of an antibody to human osteocalcin. The fragments were injected into an animal and the resulting antibodies were obtained. The antibodies can be used in the determination of the rate of bone absorption in
Osteocalcin; musculoskeletal disorders; sandwich assay.
                              09-JAN-1991
                                             AAR06631;
                                                                                                                                                           Sequence
                                                                                                                                                                                                                          Disclosure; Fig 1; 8pp; Japanese
                                                                                                                                                                                                                                           osteocalcin
                                                                                                                                                                                                                                                Antibody to human osteocalcin peptide of 1 to 19th radicals
                                                                                                                                                                                                                                                                        WPI; 1992-320370/39.
                                                                                                                                                                                                                                                                                                     27-DEC-1990;
                                                                                                                                                                                                                                                                                                                   27-DEC-1990;
                                                                                                                                                                                                                                                                                                                                  14-AUG-1992.
                                                                                                                                                                                                                                                                                                                                                 JP04225162-A
                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                              Osteocalcin;
                                                                                                                                                                                                                                                                                                                                                                                           Osteocalcin AA 1-19, peptide AbI.
                                                                                                                                                                                                                                                                                                                                                                                                                          AAR26407;
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR26407 standard; peptide; 20 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
              Human osteocalcin fragment.
                                                            AAR06631 standard;
                                                                                                                                                                        bone metabolism.
                                                                                                                                                                                                                                                                                      (TEIJ ) TEIJIN LTD.
                                                                                                                                                                                                                                                                                                                                                                                                           20-MAY-1998
                                                                                              L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YLYQWLGAPVPYPDPLEPRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YLYQWLGAPVPYPDPLEPRR 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20;
                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                         20 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40.8%; S ilarity 100.0%; Conservative 0;
                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                             antibody; bone; absorption; metabolism
                              (first
                                                                                                                                                                                                                                                                                                                                                                                                          (first
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                                                                                                                                                                                                                                                                                                    90JP-0415242
                                                                                                                                                                                                                                                                                                                   90JP-0415242
                                                          protein;
                                                                                                                          38.8%; Scc
100.0%; Pr
'" 0;
                             entry)
                                                                                                                                                                                                                                                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20
                                                            15
                                                                                                                             Score 19; DB; Pred. No. 1.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 20;
Pred. No.
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                                                            A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                  obtd. by immunising with 
f N-terminal of human
                                                                                                                                   DB 13;
1.8e-13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 16;
3.2e-14;
                                                                                                                                           13;
                                                                                                                                          Length 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 49;
                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                            0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                             Gaps
                                                                                                                            0;
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                                                                                                                                                                                                     RESULT 20
AAO17841
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                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 14
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Peptide
WPI; 2002-435621/46.
N-PSDB; AAL47111.
                                                                                                                          Peptide presentation; epitope mapping; bact
                                                                                                                                                                                AA017841;
                                                                                                                                                                                             AAO17841 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              02-OCT-1989;
10-FEB-1989;
                     Kolmar H,
                                                   26-OCT-2000; 2000DE-1053224
                                                                 25-OCT-2001; 2001WO-DE04009
                                                                                 02-MAY-2002
                                                                                               WO200234906-A2
                                                                                                             Unidentified
                                                                                                                                                                 20-AUG-2002
                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                     Disclosure; fig 3; 80pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1990-275233/36.
                                                                                                                                                                                                                                                                                                                                                                                                                                Hosoda K,
                                                                                                                                                                                                                                                                                                                                                                                                                                               (TEIJ ) TEIJIN KK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-FEB-1990;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9009587-A
                                                                                                                                                                                                                                            36 IGFQEAYRRFYGPV
                                                                                                                                                                                                                                   2 IGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                14;
                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                               Honda H,
                     Christmann
                                                                                                                                                                                                                                                                                             15
                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             89JP-0255306
89JP-0030003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90WO-JP00155
                                                                                                                            tion; host
bacteria;
                                                                                                                                                                                              Protein;
                                                                                                                                                                                                                                                 49
                                                                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                       28.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                Kubota
                     P
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                                                                                                                                                                                                                                                                0;
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Monoclonal antibodies (MAbs), OST-C7 and OST-C15) are raised to this osteocalcin peptide fragment (C-terminal bases 43-49) and a shorter constituent of this (C-terminal bases 35-49) respectively. A further MAb (OST-N20) is raised to a fragment comprising N-terminal bases 1-20. A sandwich immunoassay is then carried out and musculoskeletal dis- orders can be diag-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Immunoassay of human osteocalcin in diagnostic specimens - using sandwich assay with antibodies raised respectively to N-terminal and C-terminal sites on osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                       Peptide presentation method related vector encoded protein #2
                                              (UYGE-) UNIV GEORG AUGUST GOETTINGEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ...ied out and musculoskeletal see also AAR06630.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers 9..15
Wentzel A;
                                                                                                                                                                                                                                                                                                                                                  cell surface; antibody
EETI-II.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 14;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Masuho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 11; L.
3.4e-08;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Υ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 15;
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RESULT 21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cell-surface presentation of peptides or proteins, useful e.g. for isolating monospecific antibodies, comprises expression of a fusion sequence with truncated intimin, in bacteria -
                                             an example as a digestion before analysis by mass spectrometry, using this novel on-plate strategy. Total sequence information from a nine well digestion can be represented in a single digestion cit is often derived from two or more wells. The methods, apparatus are kit (claimed) can be used for the analysis of polymers, particularly biopolymers, e.g. DNA, RNA, peptide nucleic acids, proteins, peptides are the contraction of the strategy of t
                                                                                                                                                                                                               A method of obtaining sequence information about a polymer (e.g. DNA, RNA, peptide nucleic acids, proteins, peptides and carbohydrates) comprising monomers of known mass has been claimed. The present sequence represents a fragment of osteocalcin (7-19), and was used as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
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biopolymers, e.g. DNA, RNA, peptide nucleic acids, proteins, peptides and carbohydrates. It provides a rapid, automated and cost effective sequencing of polymers, with a statistical certainty.
                                                                                                                                                                                                                                                                                                                                                                                                           Sequencing polymers, e.g. DNA, RNA, peptide nucleic acids, proteins, etc. - by obtaining mass to charge ratios of polymer fragments, pref. using mass spectrometer, and performing statistical analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19-MAY-1995;
19-MAY-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mass spectrometry; polymer analysis; biopolymer analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Osteocalcin 7-19 fragment for mass spectrometry analysis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW04605 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PERS-) PERSEPTIVE BIOSYSTEMS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17-MAY-1996;
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14; Conserv
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                                                                                                                                                                                                                                                                                                                                                              Page
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95US-0446055.
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                                                                                                                                                                                                                                                                                                                                                        32; 86pp;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              28.6%;
100.0%;
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                                                                                                        albumin). FGF-16 nucleic acids and/or proteins may be used for stimulating the proliferation and development of hepatocytes both in vitro and in vivo. The isolated nucleic acid molecules may be used directly in cell or gene therapy applications to treat or prevent liver disorders, including hepatic cirrhosis, fulminant liver failure, damage caused by acute viral hepatitis and toxic insults to the liver. This sequence represents an E tag, DNA encoding which was fused to the rat FGF-16 coding region, along with DNA encoding a hexahistidine tag. The tagged rat FGF-16 cDNA was cloned into a baculovirus expression system in an exemplification of the present
                                                                                                                                                                                                                                   The invention relates to rat and human fibroblast growth factor-16 (FGF-16, AAY58428-Y58429), and nucleotides which encode these protection in the protection and growth activity, and
                                                                                                                                                                                                                                                                                                                  Fibroblast growth proliferation and
                                                                                                                                                                                                                                                                                                                                                     WPI;
                                                                                                                                                                                                                                                                                                                                                                          Arakawa
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     E tag peptide,
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                                                                                                 invention
                                                                                                                                                                                                                        increases hepatic production of triglycerides and serum proteins (e.g.,
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GAPVPYPDPLEPR
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13; Conserv
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13; Conser
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llarity 100.0%;
Conservative 0;
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                                                                                                                                                                                                                                                                                  Column 14; 33pp;
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                                                                                                                                                                                                                                                                                                                  factor growth
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                                                                                                                                                                                                                                                                                                                                                                          Danilenko
                                                                                                                                                                                                                                                                                                                 family polypeptide which of hepatocytes is useful
                                          Score; Pred.
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                               Mismatches
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l. No.
                                                                                                                                                                                                                                                                                                                                                                           Martin
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3.6e-07;
                                          DB 21; 1
3.6e-07;
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for treating hepatic
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RESULT 23
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The invention provides human nucleic acids encoding fibroblast growth factor (FGF)-like peptide. The FGF-like polypeptides can be expressed by standard recombinant methodology and are mitogenic for a wide range of cells, inducing differentiation and proliferation, and inhibiting deposition of fat. The FGF-like polypeptides, polynucleotides and specific antibodies and modulators are useful for treating a very wide range of diseases and conditions, e.g. wounds, ulcers, skin aging, obesity, diabetes, alopecia, inflammatory bowel disease, emphysema, viral hepatitis, multiple sclerosis, respiratory distress syndrome, tumors of the eye, etc., also for maintaining organs before transplant and supporting culture of primary cells and tissues. Sequences AAG65668-69 represent amino acid sequences of protein tags used for recombinant expression of FGF-like polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New human nucleic acid encoding fibroblast growth factor-like peptide useful for treatment and diagnosis of e.g. wounds and inflammatory {\bf r}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  fat deposition; vulnerary; antiulcer; dermatological; anoretic
antidiabetic; antiinflammatory; cytostatic; hepatic; virucide;
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                              E-tag peptide
                                                                                       07-SEP-2001 (first entry)
                                                                                                                                                   AAU02089;
                                                                                                                                                                                                          AAU02089 standard; Peptide;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 22; I
3.6e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 13;
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GAPVPYPDPLEPR

GAPVPYPDPLEPR

19

Conservative

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Mismatches

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Gaps

0

AAB91920 RESULT 25

AAB91920 standard; Peptide; 13

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AAB91920;

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Best Loc
Matches
                                  Query Match
                                                                                                                                                                                                                                                                                                                                The sequence an E-tag which can be incorporated into a fusion protein (to allow purification of the fusion protein) with Human or rat fibroblast growth factor 20, FGF-20. The FGF polypeptides and nucleic acids encoding them are useful for providing trophic support for cells in a patient, especially a patient with parkinson's disease, and FGF-20 is additionally used to treat patients with conditions of the substantia nigra. The polypeptides and nucleic acids are useful for alleviating human brain conditions by slowing degeneration, restoring function of, or increasing the number of, dopaminergic neurons. The polypeptides and and nucleic acids are also useful for alleviating cochiea-associated disease by slowing degeneration for alleviating cochiea-associated disease by slowing
                                                                                                                                                                                                               degeneration of or restoring or maintaining normal function of the structure of cochlea, where the disease is otosclerosis, Cogan's syndrome, Meniere's disease, Pendred's syndrome, diabetes -associated hearing loss, congenital malformations, autoimmune disease related hearing loss, age-related hearing loss, deafness associated with lack of FGF receptor and ischaemia-related hearing disturbance. Other
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fibroblast growth factor 20; FGF-20; Parkinson's disease; substantia nigra; dopaminergic neuron; cochlea-associated disease; otosclerosis; Cogan's syndrome; Meniere's disease; Pendred's syndrome; diabetes-associated hearing loss; congenital malformations; autoimmune disease-related hearing doss; age-related hearing loss; age-related hearing disturbance; immunogen; antibody; neuro-degenerative disease; tendonitis; wound healing;
                                                                                                                    used
                                                                                                                                     diseases thought to be amenable to FGF therapeutic activity include neuro-degenerative diseases, tendonitis, wound healing, Stroke and ischaemia. The polypeptides can be used to screen for agonists and antagonists. Epitope bearing fragments of the FGF-20 polypeptides cu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New human and rat Fibroblast Growth Factor (FGF) polypeptides for providing trophic support for cells used in Parkinson patients, alleviating brain and cochiea conditions -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (CHIR ) CHIRON CORP. (KYOU ) UNIV KYOTO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-OCT-1999;
08-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200131008-A2
                                                                           Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2001-308642/32.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-OCT-2000; 2000WO-US29237.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      03-MAY-2001
                  Local
                                                                                                                    to raise
. Similarity
13; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ischaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kavanaugh WM
                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0161162
2000US-0187856
                                                                                                                  Epitope bearing fragment anti-FGF-20 antibodies.
                                                                             ξ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E-tag.
                26.5%; Score 13; 100.0%; Pred. No.
                DB 22; 1
3.6e-07;
                                    Length 13;
                                                                                                                                                                                                                                       with lack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a reactive group (II) (e.g. succinimidyl and maleimido groups) attached to a less therapeutically active amino acid region (IV), which covalently bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptide composed of 3-50 amino acids. (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to albumin prevents or reduces the action of peptidases to increase length of activity (half life) and specificity as bonding to large molecules decreases and specificity as bonding to large molecules decreases. AAB90829 to AAB9241 represent peptides which can be used in the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                             Matches
    Antibody;
                                                 E tag.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Modifying and attaching therapeutic peptides peptidase degradation, useful for increasing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Protection; endogenous therapeutic peptide; peptidase; conjugation; blood component; modification; succinimidyl; maleimido group; amino; hydroxyl; thiol; hormone; growth factor; neurotransmitter.
                                                                                              26-APR-2001
                                                                                                                                        AAB70172;
                                                                                                                                                                                  AAB70172 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
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10-SEP-1999;
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                                                                                                                                                                                                                                                                                                                                              GFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
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  sperm;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  13 AA;
                                                                                                                                                                                                                                                                                                                                                                                           Conservative
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                                                                                           (first
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99US-0153406.
99US-0159783.
    S19; contraception
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                                                                                                                                                                                peptide;
                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                26.5%;
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Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                3.
                                                                                                                                                                                                                                                                                                                                                                                                             в 22;
.6e-07;
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ID XXX ACC XXX
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RESULT 27
AAO15409
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Best Local S
Matches 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New recombinant antibody derivative of monoclonal antibody S19, useful as a reagent for purifying or detecting human spermatozoa, as an active ingredient of a spermistatic agent, or as a component of a spermicidal
                                                                                                                                                                                                                         Mammalian; nuclear receptor cofactor; CF7; CF8; metabolism regulation; cell homeostasis; cell proliferation; differentiation;
                                                                                                                                                                                                                                                                      E tag - peptide tag
 Jackson
                             (LION-) LION BIOSCIENCE AG
                                                          21-NOV-2000; 2000EP-0125524
                                                                                       21-NOV-2001; 2001WO-EP13548
                                                                                                                     30-MAY-2002
                                                                                                                                                  WO200242322-A2
                                                                                                                                                                               Synthetic.
                                                                                                                                                                                                           pathological cellular aberration; cellular defence mechanism;
                                                                                                                                                                                                                                                                                                 27-SEP-2002
                                                                                                                                                                                                                                                                                                                               AA015409;
                                                                                                                                                                                                                                                                                                                                                         AAO15409 standard; Peptide; 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 spermicidal contraceptive
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13; Conserv
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 Casari G,
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                                                                                                                                                                                                                                                                    sequence
                                                                                                                                                                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26.5%;
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 Suckow
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                                                                                                                                                                                                                                                                                                                                                          AA
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3.6e-07;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 13;
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RESULT 28
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The present invention relates to CFI1, a novel human nuclear receptor cofactor (ABB83451). CFI1 modulates genes involved in various cellular functions such as regulation of metabolism and cell homeostasis, cell proliferation and differentiation, pathological cellular aberrations or cellular defence mechanisms. CFI1 binds retinoic acid receptor (RAR; NRIA) and thyroid hormone receptor (TR; NRIB) but not retinoid X receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nuclear receptor cofactor; CF11; metabolism regulation; cell homeostasis; cell proliferation; cell differentiation; central nervous system; metabolic disorder; immunological c
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                                                                                                                                                                                                 Disclosure; Page 15;
                                                                                                                                                                                                                                                                             Novel polypeptide useful for screening agents capable of inhibiting or activating the cellular function of cofactor of mammalian nuclear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21-DEC-2001; 2001WO-EP15133
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          modulators useful
                                                                                                                                                                                                                                                         receptor CF11
                                                                                                                                                                                                                                                                                                                                                                                                                                Jackson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (LION-) LION BIOSCIENCE AG
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3.6e-07
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       immunological disease;
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RESULT 29
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TR; NR2B) or steroid hormone receptors. CF11 expression is restricted to the central nervous system and could be confined to neurons in the dentate gyrus of the hippocampus, the amygdala, thalamic and hypothalamic regions. Antagonists to CF11 are useful in the development of drugs against diseases such as metabolic disorders, immunological indications, hormonal dysfunctions and/or neurosystemic diseases or related to defects in neuronal diseases. The present sequence is a peptide tag, which may be used to generate recombinant CF11 proteins.
                                                        for screening drugs for agonist and antagonist activity and for screening drugs useful in regulating physiological responses associativity and in structural drug designing. The molecules of the invention are useful for identifying compounds for treating metabolic disorders, immunological indications, hormonal dystunctions metabolic disorders, immunological indications, hormonal designing and/or neurosystemic diseases. The invention can be useful as intermediates for making cellular preparations for cofactor binding assays, which are useful in drug screening. The present amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cofactor 9; CF9; nuclear receptor; metabolic disorder; drug design; immunological indication; hormonal dysfun neurosystemic disease; cofactor binding assay; E tag.
                                                                                                                                                                                                                                                                                                 Novel mammalian nuclear receptor cofactor 9 polypeptide useful for identifying compounds for treating metabolic disorders, immunologications, hormonal dysfunctions and/or neurosystemic diseases
                                                                                                                                                                                                                                                                        Disclosure;
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                                                                                                                                                                                       The invention is also useful for screening for nuclear receptors,
                                                                                                                                                                                                         agents
                                                                                                                                                                                                                                     The present invention relates to a new mammalian nuclear receptor
                                                                                                                                                                                                                                                                                                                                                                                                   Jackson
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                                                                                                                                                                                                      or 9 (CF9) polypeptide. The invention is useful for screening which are capable of inhibiting the cellular function of CF9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tag peptide sequence
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3.6e-07;
                                            The present amino acid
nce, as described in the
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RESULT 30
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RESULT 31
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                                                                                                                                                                                                      pregnane x nuclear receptor (PXR). The polypeptide encoded by the nucleic acid comprises 255 amino acids or 293 amino acids fully defined in the specification. The nucleic acid is useful for making vectors and transforming cells, both of which are ultimately useful for producing the cofactor proteins. The nucleic acids may also be used for determining a subject's response to xenobiotic substances or drugs. The proteins or complexes are useful for screening substances that bind the proteins or complexes, particularly agonists or antagonists of PXR. The proteins or anino acid sequence represents the E tag peptide that was used in the invention to facilitate purification of recombinant proteins. The cofactor proteins of the invention are useful for screening and the combinant proteins.
                                                                                                                                                                                                                                                                                                                                                                                                                                             New nucleic acids and cofactors of the pregnane x nuclear receptor (PXR), which the nucleic acid encodes, useful for screening agonist antagonists of PXR, and for determining a subject's response to
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AAE18828 standard; peptide; 13 AA
                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                              The present invention relates to a new nucleic acid molecule and its encoded polypeptide. The nucleic acid codes for a cofactor of the
                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-AUG-2000;
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                                                                                                                                                                                  13 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                     substances
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                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            receptor; PXR; cofactor; xenobiotic; E tag.
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s; Pred. No. 3.6
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RESULT 32 AAE18389

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                                                                                                                                                                        Cd disease, inflammatory bowel disease, Crohn's disease, radiation- or commontherapy-induced gut toxicity, hyaline membrane disease, necrosis cof the respiratory epithelium, emphysema, pulmonary inflammation, compunonary fibrosis, hepatic cirrhosis, toxic insults to the liver, commonary fibrosis, hepatic cirrhosis, toxic insults to the liver, commonary fibrosis, hepatic cirrhosis, toxic insults to the liver, commonary displasia, acute respiratory distress commonary fibrosis hepaticis, infantile respiratory distress commonary displasia, acute respiratory distress commonary displasia, acute respiratory distress commonary displasia, acute respiratory distress commonary experimental common content lung abnormalities, tumours of the eye or the other commonary expension, promoting wound healing, modulating differentiation of commonal cells, adipocytes and skeletal muscle cells, preventing or commonal cells, adipocytes and skeletal muscle cells, preventing or commonal cells, adipocytes and skeletal muscle cells, preventing or common common common distribution of cells and bone marrow cells and common distribution and for supporting cultures components and tissues. Sequences of the invention are also common distribution of primary cells and tissues. Sequences of the invention are also components and in the production of FGF-like polypeptides.
                                                                                    Matches
                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to fibroblast growth factor (FGF)-like polypeptides and nucleic acid molecules encoding such polypeptides. Sequences of the invention are useful for treating, preventing or ameliorating a medical condition. They are useful for treating dermal wounds, epidermolysis, bullosa, male pattern alopecia, gastric ulcer, duodenal ulcer, erosive gastricis, oesophagitis, oesophageal reflux disease, inflammatory bowel disease, Crohn's disease, radiation- or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fibroblast growth factor; FGF-like protein; wound healing; bullosa; epidermolysis; erosive gastritis; inflammatory bowel disease; ulcer; oesophagitis; Crohn's disease; byaline membrane disease; emphysema; pulmonary fibrosis; hepatic cirrhosis; liver failure; angiogenesis; multiple sclerosis; neurodegenerative disease; lung abnormality; viral hepatitis; respiratory distress syndrome; tumour; skin aging;
                                                                                                                                                                        Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel fibroblast growth factor-like polypeptide useful for treating, ameliorating and/or preventing dermal wounds, gastric ulcer, Crohn's disease and pulmonary inflammation -
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1 GAPVPYPDPLEPR 13
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                                          GAPVPYPDPLEPR 19
                                                                                    13;
                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HOTI
                                                                                                                                                                        13 AA;
                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001US-0822485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          production of FGF-like polypeptides
                                                                                                        26.5%;
100.0%;
                                                                                                          Score 13;
; Pred. No.
                                                                                    0
                                                                                      Mismatches
                                                                                                     DB 23; 1
3.6e-07;
                                                                                                                              23;
                                                                                      0
                                                                                                                            Length 13;
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                                                                                 Gaps
                                                                                    0;
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AAE18389 standard;

13

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RESULT 33
AAM48056
ID AAM48
XX
AC AAM48
XX
AC AAM48
XX
DT 14-MA
XX
DE E-tag
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                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                       The invention relates to a method of modulating proliferation or differentiation of mammalian skin or hair cell. The method involves topical administration of a liposome encapsulated-peptide, its salt or derivative, identical to parathyroid hormone (PTH) or parathyroid related peptide (PTHP). Method of the invention is useful for inhibiting hyperproliferative skin disorders e.g. psoriasis, clickthyosis, actinic keratosis, skin cancer, inhibiting hair growth or preventing hair regrowth. It is also useful for stimulating skin cell growth, rejuvenating aged skin, preventing and treating skin wrinkles, enhancing wound healing, stimulating hair growth, maintaining hair growth, treating or preventing female or male pattern baldness, cell growth and hair follicle cell growth. The present sequence is a peptide of human bone Gla protein (BGP) used in the method of the
                                                                                                                                                                                                                        Query Match
Best Local S
Matches 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Modulating proliferation or differentiation of mammalian skin or cell for treating hyperproliferative diseases, comprises topical administration of liposome encapsulated-peptide identical to parathyroid hormone
E-tag sequence
                               14-MAR-2002
                                                           AAM48056;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 10; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2002-171552/22.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (HOLI/) HOLICK M F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22-JUN-2000; 2000US-213247P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-JUN-2001; 2001WO-US19650
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PTH; parathyroid related peptide; hyperproliferative skin disorder; psoriasis; ichthyosis; actinic keratosis; alopecia; skin cell growth; hair growth; wrinkle; wound healing; chemotherapy; skin cancer; PTHrP bone Gla protein; BGP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; cell proliferation; cell differentiation; parathyroid hormone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Human BGP peptide #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               07-MAY-2002
                                                                                       AAM48056 standard;
                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                             37 GFQEAYRRFYGPV 49
|||||||||||
1 GFQEAYRRFYGPV 13
                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                   13
                                                                                                                                                                                                                           Conservative
                             (first entry)
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                                                                                                                                                                                                                                                                                   A
                                                                                       peptide;
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                                                                                                                                                                                                                     26.5%; but
100.0%; Pr
                                                                                        13
                                                                                                                                                                                                                                        Score 13;
Pred. No.
                                                                                        B
                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                      DB 23;
                                                                                                                                                                                                                                        3.6e-07;
                                                                                                                                                                                                                                                    Length 13;
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Matches 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                          the identified amino acid sequence motifs to known amino acid sequences of a genome and identifying a gene product of the genome possessing the motif as the naturally occurring binding partner or partner precursor, for the target. The method is useful for determining the influence which specific genotypes have on phenotypes and for obtaining peptides which may be used to identify the natural protein partner of the target and enable synthesis of peptides which alter the phenotype of cells expressing the target. The method may also be used to identify peptide ligands capable of activating or inhibiting gene products through their ability to bind to such gene products as well as the activity and function of the gene products themselves. The present sequence is that of a tag sequence for peptide library sequences useful to the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recurring a naturally occurring binding partner or binding precursor for a target, comprises comparing identified amino sequence motifs to known sequences of a genome to identify a product of the genome having the motif
                                                                                                           Attractin; immune response; macrophage; monocyte; T cell; cancer; scFv; immunostimulant; immunosuppressed patient; immunodeficiency syndrome; transplant; autoimmune disease; antibody; single chain variable fragmen
                                                                                                                                                                   E. coli antibody
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-089808/12.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Blume AJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-MAY-2001; 2001WO-US15092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200186297-A2
                                                       WO200015651-A1
                                                                                   Escherichia
                                                                                                                                                                                              18-JUL-2000
                                                                                                                                                                                                                          AAY70693;
                                                                                                                                                                                                                                                    AAY70693 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Example 1; Page 20; 47pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Phenotype; protein binding partner;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  partner or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (DGIB-) DGI BIOTECHNOLOGIES INC
                                                                                                                                                                                                                                                                               34
                                                                                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                      1 GAPVPYPDPLEPR 13
                                                                                                                                                                                                                                                                                                                                                  GAPVPYPDPLEPR
                                                                                                                                                                                                                                                                                                                                                                                            Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                     13 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   binding
                                                                                   coli
                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  relates to identifying a naturally occurring binding nding partner precursor for a target, comprising comp
                                                                                                                                                                    derived
                                                                                                                                                                                                                                                    peptide; 15 AA.
                                                                                                                                                                                                                                                                                                                                                  19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               partner
                                                                                                                                                                                                                                                                                                                                                                                          26.5%;
                                                                                                                                                                 peptide to isolate
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                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                          Score 13;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                               Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hsiao
                                                                                                                                                                                                                                                                                                                                                                                            DB 23;
3.6e-07;
                                                                                                                                                                   attractin
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                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                         Length 13;
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acid
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14-SEP-1999; 23-MAR-2000

99WO-US20948.

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ID XXX ACC CONTROL TO THE PRINCE OF THE PRIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAY05366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local
Matches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           which enhance immune response by promoting macrophage and monocyte spreading in the presence of T cells. These include soluble attractin-1 and -2 and membrane attractin-1 and -2. These various forms of attractin are encoded by alternatively spliced mRNA molecule transcribed from a single gene. The present sequence is a peptide downstream to kappa light chain of an E. coli antibody. Antibody directed against this region is used in an affinity column to isolate E. coli soluble single chain variable fragment (scry) specific for attractin. Attractin can be
                                                                                                                                                                                                                                                                                                                                                                                                                                Single stranded HBV infection; v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in immunosuppressed patients such as those undergoing chemo- and radio-therapy treatment for cancer or those suffering from common variable immunodeficiency syndrome. The protein may also be used screen modulators (agonists and antagonists) of immune responses
WPI; 1999-243623/20
                                          Hayashi N,
                                                                                         (HAYA/)
                                                                                                                                                                                                                                                                                                         W09911792-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HBV specific
                                                                                                                                                                 02-SEP-1997;
                                                                                                                                                                                                                02-SEP-1998;
                                                                                                                                                                                                                                                            11-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY05366
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               used to enhance immune response
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 7;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           recipients
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                                                                                                                                                                                                                                                                                                                                                                                                                             infection;
                                                                                                                                                                                                                                                                                                                                                                                                       therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAPVPYPDPLEPR
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   l Similarity
13; Conser
                                                                                         HAYASHI N
SUMITOMO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                standard; peptide; 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nucleic acids encoding human
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                                            Tohdoh N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   single
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                                                                       MO PHARM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         patients
                                                                                                                                                            97JP-0237054.
                                                                                                                                                                                                             98WO-JP03921.
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                                                                                                                                                                                                                                                                                                                                                                                                                        antibody; hepatitis B virus; HBV core protein;
viral proliferation inhibitor; viral DNA synthesis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Schlossman
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   stranded antibody fragment.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    26.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    four forms of human attractin polypeptides response by promoting macrophage and monoc
                                                                                           င္ပ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           afflicted with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       to regulate immune reactions. Attractin to inhibit immune response in transplant
                                            Yamamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 13;
Pred. No.
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                                            Ή,
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                                            Yamamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         autoimmune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              attractin
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4.1e-07;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nas the capability of binding to a hepatitis B virus (HBV) core protein. Therapeutic agents can be formulated with the antibody for treatment of HBV infections by stopping proliferation of the virus through inhibition of viral DNA synthesis, and the gene encoding the antibody can be anniac as an agent to gene therapy.
                                                                                                                                                                  Beasley J, I
Brissette R,
Hansen PH, I
        The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are
                                                                                               Modulating insulin activity in mammalian cells, diabetes and tumours, comprises using peptides insulin-like growth factor receptors -
                                                                                                                                             WPI;
                                                                                                                                                                                                              (NOVO)
                                                                                                                                                                                                                                                                                                                  WO200172771-A2
                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                        diabetic
                                                                                                                                                                                                                                                                                                                                                                                                       Cytostatic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 4; Page 68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Single-stranded antibody against hepatitis B virus core protein, applicable as (gene) therapeutic agents for treatment of hepatitis
                                                                          Example
                                                                                                                                                                                                                                                29-MAR-2000;
                                                                                                                                                                                                                                                                     29-MAR-2000;
                                                                                                                                                                                                                                                                                             04-OCT-2001
                                                                                                                                                                                                                                                                                                                                                             diabetic
                                                                                                                                                                                                                                                                                                                                                                        insulin-like growth fi diabetic retinopathy;
                                                                                                                                                                                                                                                                                                                                                                                              ophthalmological;
                                                                                                                                                                                                                                                                                                                                                                                                                            Insulin/insulin-like growth factor receptor-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAU88451 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
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                                                                                                                                             2002-025774/03
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  i Similarity
13; Conserv
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                                                                                                                                                                                                                         DGI BIOTECHNOLOGIES
                                                                                                                                                                                                                                                                                                                                                             neuropathy.
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                                                                                                                                                                                       Blume AJ,
                                                                                                                                                                                                                                                                                                                                                                                                       antidiabetic; neuroprotective;
                                                                          Page 132;
                                                                                                                                                                   Ravera M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                NORDISK AS.
                                                                                                                                                                                                                                                2000WO-US08528
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                                                                                                                                                                             Spetzler
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                     insulin; receptor; gene therapy; diabetes; th factor-1; IGF-1; tumour; prostate; breast; thy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26.5%;
                                                                        390pp;
                                                                                                                                                                  Schaeffer
J, Cheng
Hsiao K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ).0%;
0;
                                                                                                                                                                                                                         LLC.
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Pred. No.
                                                                         English.
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Ostergaard (
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                                                                                                                                                                             Brandt J;
Mandecki
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RESULT 37
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                  The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are antagonists of the insulin-like growth factor-1 (IGF-1) receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful is screening for compounds that bind to IR or IGF-1 receptor, potential
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       insulin-like growth factor-1; IGF-1; tumour; prosta diabetic retinopathy; neurological diseases.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic
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                                                                                                                                                                                                                                                                                                                                                                                         diabetes and insulin-like
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    diabetic neuropathy.
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                                                                                                                                                                                                                                                                                                                                                                                                                                      Modulating insulin activity in mammalian cells,
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                                                                                                                                                                                                                                                                                                                                         Example
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beasley J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OVON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Insulin/insulin-like growth
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                                                                                                                                                                                                                                                                                                                                      28; Page 131; 390pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
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growth factor receptors
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Schaeffer J, Cheng Hsiao K;
     reagents.
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AAU88034-AAU90957 represent
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9.1e-07;
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RESULT 38
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                                                                                                                                                                                                                                             11-OCT-1996;
07-DEC-1995;
23-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and/or of the
                detection with anti-E tag antibodies and a hexahistidine tag for IMAC purification. Human carcinoembryonic antigen (CEA) epitope sequences were cloned into the vector for preparation of purified CEA domains. These were used to examine the domain recognition of anti-CEA antibody CEA6 (see AAW19881) and TO6D11.
                                                                                                                                Specific binding members for human carcinoembryonic antigen - be to the A3-B3 extracellular domain of hCEA and are substantially non-cross-reactive with human liver cells; used for diagnosing
                                                                                                                                                                         N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Carcinoembryonic antigen; CEA; human; antibody; scFv; tumour marker; lung cancer; breast cancer; colon canc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-DEC-1997
                                                                                                    Example 7;
                                                                                                                                                                         WPI; 1997-319779/29
N-PSDB; AAT72137.
                                                                                                                                                                                                                                                                                        09-DEC-1996;
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Sequence
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                                                                                                                                                                                                                           (CAMB-) CAMBRIDGE ANTIBODY TECHNOLOGY
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                                                                     polypeptide sequence is encoded AAT72137) in vector pUC119EHIS.
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13; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             {\tt IGF-1} receptor-binding peptides and related amino acid sequences invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                    Fig 11;
                                                                                                                                                                                                       McCafferty
43
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                  lung cancer; breast cancer;
diagnosis; vector; plasmid
                                                                                                                                                                                                                                               95GB-0025004
96GB-0010824
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38..43
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                                                                                                  128pp;
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Query Match Best Local S Matches 13

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RESULT 39
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                      QY
                                                     Query Match
Best Local S
Matches 13
                                                                                                                                             The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are antagonists of the insulin-like growth factor (IGF-1) receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful in screening for compounds that bind to IR or IGF-1 receptor, potential therapeutics and research reagents. AAU88034-AAU90957 represent IR and/or IGF-1 receptor-binding peptides and related amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                     Modulating insulin activity in mammalian cells, for treating e.g. diabetes and tumours, comprises using peptides that bind to insulin insulin-like growth factor receptors -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IGF-1; tumour; prostate; breast; diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cytostatic; antidiabetic; neuroprotective;
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                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                             Example 28; Page 131; 390pp; English.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Beasley
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diabetic neuropathy.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hansen
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OVON)
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                  GAPVPYPDPLEPR 19
                                                                                                                                      invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      PH,
                                                     Similarity
13; Conserv
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ravera M,
                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000WO-US08528
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                                                 26.5%; July 100.0%; Pr
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J, Cheng
Hsiao K;
                                                     Score 13; DB ; Pred. No. 1e-0; Mismatches
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                                                                 DB 23;
1e-06;
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                                                       0;
                                                                               Length 44;
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                                                       Gaps
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RESULT 40
AAU88447
ID AAU88
RESULT 41
AAU88443
ID AAU88
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ophthalmological; insulin; receptor; gene therapy; diab
insulin-like growth factor-1; IGF-1; tumour; prostate;
diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       diabetic neuropathy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAU88447 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200172771-A2
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                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            diabetes and tumours, comprises using insulin-like growth factor receptors
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Modulating insulin activity in mammalian cells, for treating e.g. diabetes and tumours, comprises using peptides that bind to insulinguity growth factor perentage.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-025774/03.
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Hansen PH, Ravera
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-OCT-2001
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                                           AAU88443 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 28; Page 131; 390pp; English.
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                                                                                                                                                                                        Local
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                                                                                                                   GAPVPYPDPLEPR
                                                                                                                                                                           l Similarity
13; Conser
                                                                                                                                                                                                                                    44
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                                                                                                                                                                                                                                    AA;
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                                             Peptide;
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                                                                                                                                                                                        26.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          growth factor receptor-binding peptide #403
                                                                                                                                                                                          Score 13; DB 23; 
; Pred. No. 1e-06;
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Ostergaard !
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                                                                                                                                                                                                         Length 44;
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, Mandecki WS,
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AAU88443

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                                                                                                            AAU88440
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                                                                                                                                                                                               Query Match
Best Local S
Matches 13
                                                                                                                                                                                                                                                                     The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are antagonists of the insulin-like growth factor-[IGF-1] receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful it screening for compounds that bind to IR or IGF-1 receptor, potential therapeutics and research reagents. AAU88034-AAU90957 represent IR and/or IGF-1 receptor-binding peptides and related amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Cytostatic; antidiabetic; neuroprotective; cerebroprote ophthalmological; insulin; receptor; gene therapy; diabinsulin-like growth factor-1; IGF-1; tumour; prostate; diabetic retinopathy; neurological diseases; stroke; diabetic neuropathy.
Cytostatic; antidiabetic; neuroprotective; cerebroprotective; ophthalmological; insulin; receptor; gene therapy; diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                            Example
                                                                                                                                                                                                                                                                                                                                                                                                                                               Modulating insulin activity in mammalian diabetes and tumours, comprises using per insulin-like growth factor receptors
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                                 Insulin/insulin-like
                                                                            AAU88440;
                                                                                                 AAU88440 standard; Peptide; 46
                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brissette R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Beasley J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-MAR-2000;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hansen
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                                                                                                                                                      31
                                                                                                                                                                                                                                                                the invention.
                                                                                                                                                      GAPVPYPDPLEPR 43
                                                                                                                                                                  GAPVPYPDPLEPR 19
                                                                                                                                                                                                13;
                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                            28; Page 131; 390pp;
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                                                                                                                                                                                                Conservative
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                                                      (first entry)
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                                                                                                                                                                                            26.5%; 50
100.0%; Pr
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                                 growth
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J, Cheng
Hsiao K;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             factor receptor-binding peptide #399.
                               factor receptor-binding peptide #396.
                                                                                                                                                                                              Score 13; DB 23;
Pred. No. 1.1e-06;
0; Mismatches 0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       ian cells, for peptides that
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cerebroprotective;
                                                                                                                                                                                                                  Length 45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brandt
                                                                                                                                                                                                                                                                                                                                                                                                                                                         treating bind to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               diabetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mandecki WS;
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insulin
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AAU88452
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Best Local S
Matches 13
                                diabetic
diabetic
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                                                                                                                                                                                                                                                                                                       Sequence
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Hansen PH, F
            Synthetic
                                                                            Cytostatic;
                                                                                                                     18-JUN-2002
                                                                                                                                          AAU88452;
                                                                                                                                                             AAU88452 standard;
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                                                                                                                                                                                                                      32 GAPVPYPDPLEPR
                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                         7 GAPVPYPDPLEPR 19
                                                                                                                                                                                                                                                              13;
                                                                                                                                                                                                                                                                                                                             invention.
                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28; Page 131;
                                                                                                                                                                                                                                                                                                       46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ravera M,
                                                                            antidiabetic; neuroprotective;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Blume AJ,
                                                                                                                                                                                                                                                              Conservative
                                                                                                                    (first entry)
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                                                                                                                                                               Peptide;
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                                                                                                                                                                                                                                                                        26.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        390pp; English
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J, Cheng
Hsiao K;
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Pred. No.
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The invention relates to a method of modulating insulin activity in mammalian cells by administering a peptide that binds the insulin receptor (IR). A composition containing a peptide, optionally expressed from gene therapy vectors, that binds to Site 1 of IR and an insulin agonist are useful for treating diabetes. Also, peptides that are useful for treating diabetes. Also, peptides that are useful for treating insulin-like growth factor (IGF-1) receptor are useful for treating insulin-like growth factor (IGF)-sensitive tumours (e.g. of prostate and breast) and diabetic retinopathy, while IGF-1 receptor agonists are useful for treating neurological diseases, including stroke and diabetic neuropathy. The peptides are also useful therapeutics and research reagents. ANU88034-ANU90957 represent IR and/or IGF-1 receptor-binding peptides and related amino acid sequences of the increase.
ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IGF-1; tumour; prostate; breast; diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diabetes and tumours, comprises using peptides that bind to insulininsulin-like growth factor receptors
                                                                                                                                                                                          Insulin/insulin-like growth factor receptor-binding peptide #408.
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Ostergaard
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1.1e-06;
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RESULT 44
AAU88497
ID AAU88
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XX CYtos
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Best Local
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diabetic
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                                                                                                                                                                                                                    Cytostatic; antidiabetic; neuroprotective; cerebroprotective; ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IGF-1; tumour; prostate; breast; diabetic retinopathy; neurological diseases; stroke;
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                                                                  04-OCT-2001
                                                                                                                                                         Synthetic
                                                                                                                                                                                                                                                                                                                                    Insulin/insulin-like
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Modulating insulin activity in mammalian cells, for treating e.g diabetes and tumours, comprises using peptides that bind to insuinally insulin like growth fartor recentors.
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Brissette R,
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Hsiao K;
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Matches 13
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Brissette F
                                                                                                                                                                                                                             Cytostatic; antidiabetic; neuroprotective; cerebroprotective; ophthalmological; insulin; receptor; gene therapy; diabetes; insulin-like growth factor-1; IgF-1; tumour; prostate; breast diabetic retinopathy; neurological diseases; stroke;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Claim 219; Page 182; 390pp;
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                                                                                 29-MAR-2000; 2000WO-US08528
                                                                                                                                                                               Synthetic
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(DGIB-) DGI BIOTECHNOLOGIES LLC. (NOVO ) NOVO NORDISK AS.
                                                                                                                                                 WO200172771-A2
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Ostergaard S,
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Copyright (c) 1993 - 2002
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                                                                                                                                                                                                                                                         Q9TT28
Q99K39
Q90VW2
Q925S3
    093NW6
093NW6
009967
092KK7
093GI5
                                                                                                       Q925S2
Q9QYF0
Q9W668
Q9W668
Q8RYX0
Q9C8G1
Q9C8G1
Q38970
Q38971
                                                                                                                                                                                                                                                                                                                                                                                                                                 SUMMARIES
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Compugen
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Q9tt28 canis famil
Q99k39 mus musculu
Q90vw2 sparus aura
Q925s3 mus musculu
Q925s2 mus musculu
Q99x60 mus musculu
Q9y668 xenopus lae
Q8ryx0 oryza sativ
Q9c891 arabidopsis
Q38970 arabidopsis
Q38971 arabidopsis
Q38971 arabidopsis
Q38v1 arabidopsis
                                                                                                                                                                                                                                                                                                                                                                 Description
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45	44	43	42	41	40	39	38	37	36	ω S	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	
57	57	57.5	57.5	57.5	58	58	58	58	58.5	58.5	58.5	58.5	58.5	58.5	58.5	59	59.5	59.5	59.5	59.5	60	60	60	60	60	60	60.5	σ
20.1	•	20.2	•	•	•	•	20.4	•	•		20.6	•						21.0		21.0	•	21.1	21.1	21.1	21.1	21.1	21.3	21.5
187	41	486	412	409	2267	928	796	196	699	490	490	432	362	362	155	706	1188	477	458	369	2375	2359	1344	870	563	377	677	1034
2	16	5	G.	N	10	17	16	N	16	16				4	4	Ç		17		4	10	10	11	ω	13	11	16	4
Q8RKJ9	Q9AD27	Q9XYR0	Q9UAC5	Q54763	Q8S6N5	Q8ZVB8	Q8XPG5	Q8VVH2	Q8ZCD5	Q51460	Q51452	Q21857	Q96P71	Q9HBW7	Q9H433	Q18313	Q9UQ26	Q8ZSN7	Q9SXD5	043413	Q9FR96	090860	Q9Z2I4	014424	Q98UH6	Q9EQ73	Q8X7E7	Q96MS0
Q8rkj9 bradyrhizob	Q9ad27 streptomyce	Q9xyr0 drosophila		Q54763 synechococc	G	Q8zvb8 pyrobaculum		Q8vvh2 mesorhizobi	Q8zcd5 yersinia pe	Q51460 pseudomonas	Q51452 pseudomonas		Q96p71 homo sapien		Q9h433 homo sapien	Q18313 caenorhabdi	5		Q9sxd5 arabidopsis	O43413 homo sapien	Q9fr96 arabidopsis	Q9c8g0 arabidopsis			Q98uh6 cyprinus ca	Q9eq73 mus musculu	~	Q96ms0 homo sapien

ALIGNMENTS

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Wezeman F.H., Moskal S.F. II.;

Wezeman F.H., Moskal S.F. II.;

Wezeman F.H., Moskal S.F. II.;

"Canine Osteoblast Gene Expression.";

Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases.

EMBL; AF205942; AAF18456.1; .

InterPro; IPR002394; GLA_bone.

InterPro; IPR002294; VitK_dep_GLA.

Pfam; PF00594; gla; 1.

PRINTS; PR00002; GLABONE.

RART; SM0009; GLA; 1.

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34

SEQUENCE

34 AA; 3807 MW; 3F323F8D6FDC65D8 CRC64;
                                                    Matches
                                                                 Query Match
Best Local (
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QPTIZ8;

Q1-MAY-2000 (TrEMBLrel. 13, Created)

Q1-MAY-2000 (TrEMBLrel. 13, Last sequence update)

Q1-JUN-2001 (TrEMBLrel. 17, Last annotation update)

Q1-JUN-2001 (TremBlanate protein osteocalcin (Fragment).
                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Ĉĥordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis. NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                        Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                  Local Similarity
  \vdash
                          œ
Conservative
                                                                  65.1%;
94.1%;
                                                    2;
                                                    Score 185; DB 6;
Pred. No. 1.3e-16;
2; Mismatches 0;
                                                                             Length 34;
                                                     Indels
                                                    0;
                                                    Gaps
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RESULT

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Best Local S
Matches 29
                                                                                                                            Query Match
Best Local S
Matches 17
                                                                                                                                                                                                                                                         EMBL; AF088703; AAK66568.1; -.
EMBL; AF289506; AAK62679.1; -.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; gla; 1.
PROSITE; PS00011; GLU_CARBOXYLATION;
SEQUENCE 97 AA; 10434 MW; B95608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDILINE-21297182; PubMed=11404005;
Pinto J.P., Ohresser M.C.P., Cancela M.L.;
Pinto J.P., Ohresser M.C.P., Cancela M.L.;
"Cloning of the bone Gla protein gene from the teleost fish aurata. Evidence for overall conservation in gene organization aurata. Evidence for overall conservation in gene organization.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     099K39;
01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
Similar to bone gamma-carboxyglutamate protein, related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Actinopterygil; Neopterygil; Teleostel; Euteleostel; Acanthomorpha; Acanthopterygil; Percomorpha; Percifc Sparidae; Sparus.
NCBI_TaxID=8175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Strausberg R.;
Submitted (MAR-2001) to t
EMBL; BC005483; AAH05483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q99K39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q90VW2;
01-DEC-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; BC005483; AAH05483.1
MGD; MGI:2139729; AI461847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             bone-specific expression from fish Gene 270:77-91(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sparus aurata (Gilthead sea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Osteocalcin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-DEC-2001 (TrEMBLrel. 01-MAR-2002 (TrEMBLrel.
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SMART; SM00069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; V1tK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
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   LESLREVCELNLACEHMMDTEGIIAAYTAYYGPI
                                                            LEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
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                                                                                                                                l Similarity
17; Conser
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29; Conserv
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                                                                                                                                                                                                                                                                                                  GLU_CARBOXYLATION;
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63.0%;
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Last
                                                                                                                            Score 89; DB 13;
Pred. No. 0.00073;
4; Mismatches 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bream)
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Pred. No. 3.4e-13;
7; Mismatches 10;
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Sciurognathi;
                                                                                                                                                                                                                                                                B95608824FDFEECB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25C4B3AA8B51909E CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                  UNKNOWN_1.
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thi; Muridae;
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              Cui D., Zeng G., Yan X.,
"Cloning of mouse genes
of the irradiated mice b
the same strain.";
                                                                                  SEQUENCE FROM STRAIN=BALB/C;
                                                                                                                                     "Mechanism of exogenous nucleic acids and
the repair of intestinal epithelium after
World J. Gastroenterol. 6:709-717(2000).
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the repair of intestinal epithelium after
World J. Gastroenterol. 6:709-717(2000).
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STRAIN-BALB/C; TISSUE-SPLEEN;
MEDLINE-20183931; PubMed-10706631;
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Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
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SMART; SM00408; IGc2; 1.
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InterPro; IPR003596; Ig_v.
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BAA88633.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IGV;
   PubMed=11550673;
                                                                                                                                                                                                                                                                                                                                                                                             19
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100.0%;
                                                                                            Anura;
                                                                                                                                 clawed frog)
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Last sequence update)
Last annotation update)
                                                                                            n; Craniata; Ven
Mesobatrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                0;
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Pred.
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Pred. No.
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                                                                                                                                                                                                                                                                PRT;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       E0F96B8A17004317 CRC64;
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No.
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                                                                                          Vertebrata; i
ia; Pipoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 11;
0.11;
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0.062;
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                                                                                            Euteleostomi; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Euteleostomi;
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Best Local S
Matches 14
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Submitted (MAY-2000) to the EMBL/GenBank/DDBJ datab
EMBL; AF055588; AAD28354.2; -.
InterPro; IPR002384; GLA_bone.
R InterPro; IPR002384; VitK_dep_GLA.
R Pfam; PF00594; 91a; 2.
R PFINTS; PR00002; GLABONE.
R SMART; SM00069; GLA; 2.
R PROSITE; PS00011; GLU_CARBOXYLATION; UNKNOWN_2.
R PROSITE; PS00011; GLU_CARBOXYLATION; UNKNOWN_2.
SEQUENCE 104 AA; 12326 MW; 46ABB9E3BC23D04A CRC
                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q8RYX0;
01-JUN-2002
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                          Oryza sativa (japonica cultivar-group).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Ehrhartoideae; Oryzeae; Oryza.
NCBI_TaxID-39947;
            Arabidopsis thaliana (Mouse ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryo
Spermatophyta; Magnoliophyta; eudicotyledons;
                                                                01-JUN-2001 (TrEMBLrel. 17, Created)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat
Acetyl-CoA carboxylase, putative, 5' partial (Fra
                                                                                                                                                                                                                                                                                                                                             Sasaki T., Matsumoto T., Yamamoto K.;
"Oryza sativa nipponbare(GA3) genomic clone:OSJNBa0066C06.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Matrix Gla protein in Xenopus laevis: molecular distribution, and evolutionary considerations."; J. Bone Miner. Res. 16:1611-1621(2001).
  Spermatophyta; Magnoliophyta; eudicotyleurosids II; Brassicales; Brassicaceae;
                                                                                                                                  Q9C8G1
                                                                                                                                                                                                                                                                                                                                                                                    STRAIN-CV.
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OSJNBA0066C06.7
                                                                                                                       Q9C8G1;
                                                                                                                                                                                                                                                                                                                     Submitted (JUL-2001) to the EMBL/GenBank/DDBJ EMBL; AP003933; BAB90635.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q8RYX0
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Price P.A.;
                                                                                                                                                                                                                                                                                                          SEQUENCE
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17; Conserv
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14; Conserv
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                                                                                                                                                                                                                                                                                                          441 AA;
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34.7%;
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Last sequence update)
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Pred. No. 0.064;
5; Mismatches 1
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Pred. No. 0.77;
1; Mismatches 20
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                                                                                                                                                                                                                                                                                                         5B66364DF689AE13 CRC64;
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             Embryophyta; Tracheophyta; adons; core eudicots; Rosid
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l (Fragment).
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                Rosidae;
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RESULT Q38970
ID 38970
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ID Q3
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RX MEDLINE-20106719; PubMed-11130712;

RA White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y.,

RA White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y.,

RA White O., Alonso J., Altafi H., Araujo R., Bowman C.L., Brooks S.Y.,

RA Dubler E., Chan A., Chao Q., Chen H., Cheuk R.F., Chin C.W.,

RA Chung M.K., Conn L., Conway A.B., Conway A.R., Creasy T.H., Dewar K.,

RA Chung M.K., Conn L., Conway A.B., Conway A.R., Creasy T.H., Dewar K.,

RA Chung M.K., Conn L., Conway A.B., Fong B., Fujii C.Y.,

RA Gill J.E., Goldsmith A.D., Haas B., Hansen N.F., Hughes B., Huizar L.,

RA Hunter J.L., Jenkins J., Johnson-Hopson C., Khan S., Khaykin E.,

RA Kim C.J., Koo H.L., Kremenetskaia I., Kurtz D.B., Kwan A., Lam B.,

RA Kim C.J., Koo H.L., Kremenetskaia I., Kurtz D.B., Kwan A., Lam B.,

RA Langin-Hooper S., Lee A., Lee J.M., Lanz C.A., Li J.H., Li Y.-P.,

RA Lin X., Liu S.X., Liu Z.A., Luros J.S., Maiti R., Marziali A.,

RA Militscher J., Miranda M., Nguyen M., Nierman W.C., Osborne B.I.,

RA Militscher J., Miranda M., Nguyen M., Nierman W.C., Osborne B.I.,

RA Pai G., Peterson J., Pham P.K., Rizzo M., Rooney T., Rowley D.,

RA Sakano H., Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M., Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

RA Wu The M. Tallon L.J., Tambunga G., Toriumi M.J., Town C.D.,

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   expressed :
Plant Cell
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038970;

01-NOV-1996 (TrEMBLrel. 01,

01-NOV-1996 (TrEMBLrel. 01,

01-JUN-2002 (TrEMBLrel. 21,
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Pfam;
                                           Ichikawa N.;
"Genomic organization of 251 kDa acet
Arabidopsis: tandem gene duplication
                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-COLUMBIA ECOTYPE;
MEDLINE-96012930; PubMed-7551584;
Yanai Y., Kawasaki T., Shimada H.,
                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana (Mouse-ear cress).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotylejdons; core eudicots; Rosid:
eurosids II; Brassicales; Brassicaceae; Arabidopsis.
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PROSITE; PS00211; ABC_TRANSPER; UNKNOWN_1.
PROSITE; PS00188; BIOTIN; UNKNOWN_1.
PROSITE; PS00436; PEROXIDASE_2; UNKNOWN_1.
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srPro; IPR001882; Biotin_attach.
erPro; IPR000089; Biotin_lipoyl.
erPro; IPR000022; Carboxyl_trans.
erPro; IPR000901; CPSase.
erPro; IPR002016; Peroxidase.
n; PF02785; Biotin_carb_C; 1.
n; PF02785; biotin_carb_C; 1.
n; PF00364; blotin_lipoyl; 1.
n; PF01039; Carboxyl_trans; 1.
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AC025781; AAG51250.
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isozymes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              carboxylase.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22.2%;
27.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABC_transportr.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   209161 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 40;
2; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                               acetyl-CoA carboxylase genes in
tion has made two differentially
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9B9FCA50C2846DD0 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63;
                                                                                                                                                             Wurtele E.S., Nikolau
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2254
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10;
                                                                                                                                                                                                                                                                                                                                                          Arabidopsis
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                                                                                                                                                             в.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ŋ
                                                                                                                                                                                                                                                                                                                                                                                               Rosidae;
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Best Local S
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001882; Biotin_attach.
InterPro; IPR000089; Biotin_lipoyl.
InterPro; IPR000089; Biotin_lipoyl.
InterPro; IPR000022; Carboxyl_trans.
InterPro; IPR000901; CPSase.
InterPro; IPR000901; CPSase.
InterPro; IPR002016; Peroxidase.
Pfam; PF02785; Biotin_carb_C; 1.
Pfam; PF02785; Biotin_carb_C; 1.
Pfam; PF01039; Carboxyl_trans; 1.
Pfam; PF01039; CPSase_L_chain; 1.
Pfam; PF010289; CPSase_L_chain; 1.
Pfam; PF02786; CPSase_L_chain; 1.
PROSITE; PS00188; BIOTIN; UNKNOWN_1.
PROSITE; PS00188; BIOTIN; UNKNOWN_1.
PROSITE; PS00186; CPSASE_2; UNKNOWN_1.
PROSITE; PS00466; PEROXIDASE_2; UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1818
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EMBL;
HSSP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q38971;
01-NOV-1996 (TrEMBLrel.
01-NOV-1996 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q38971
           EMBL;
EMBL;
HSSP;
                                                                                                                                                                                                                                                                                                STRAIN=COLUMBIA;
MEDLINE=94345007; PubMed=7915036;
Roesler K.R., Shorrosh B.S., Ohlrogge J.B.;
"Structure and expression of an Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                   Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta;
Spermatophyta; Magnoliophyta; eddicotyle
eurosids II; Brassicales; Brassicaceae;
                                    Submitted (APR-1998) to EMBL; L27074; AAC41645
                                                                         ACC2,
                                                                                                                                                            "Genomic organization of Arabidopsis: tandem gene expressed isozymes.";
                                                            ACC2, coding thaliana.";
                                                                                                Johnson J.L.,
                                                                                                             STRAIN=CV. COLUMBIA;
                                                                                                                        SEQUENCE FROM N.A
                                                                                                                                                 Plant
                                                                                                                                                                                                            MEDLINE-96012930; PubMed-7551584;
Yanai Y., Kawasaki T., Shimada H.,
                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                          Plant
                                                                                                                                                                                                                                                                                     carboxylase gene
                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=3702;
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                                                                                      "Structure
                                                                                                                                                                                                  Ichikawa N.
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  , LZ7074; AAC41645.1; -. AF062308; AAG40363.1; -. P24182; IDV1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YIPAYVGGPLPVLAPLDPPERIVEYVPENSCDPRAAIAGVKDNTGKWLGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        D34630;
D34631;
P24182;
                                                                                                                                                Cell Physiol.
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                                                                                  and
                                                                                                                                                                                                                                                                                                                                                                                                                                                 carboxylase (Acetyl-CoA
                                                                                                                                                                                                                                      COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2254
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                        nd expression for the homor
                                                                                                Choi J.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1DV1
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BAA07013.1;
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                                                                                                                                                36:779-787(1995).
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                                                                        .K., Yanai Y., Wurtele ssion patterns of the d homomeric acetyl-CoA c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABC_transportr
ABC_transportr
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01, Last sequence update)
21, Last annotation update)
                                                                                                                                                                         duplication
                                                                                                                                                                                     251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12;
                                                EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 63; DB
Pred. No. 49;
L2; Mismatches
                                                                                                                                                                         kDa acetyl-CoA carboxylase genes in lication has made two differentially
                                                                                                                                                                                                                                                                                                                                                                                             eptophyta; Embryophyta;
eudicotyledons; core eu
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           F00A5AE316CC5E87 CRC64
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49;
                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis.
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                                                                        le E.S., Nikolau I
e duplicated genes
A carboxylase of I
                                                                                                                                                                                                                                                                                                  acetyl-coenzyme
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 2254;
                                                                                                                                                                                                             Nikolau
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                 eudicots; Rosidae;
                                                                        genes, ACC1 and
e of Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                            Tracheophyta;
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                                                                                                B.J
                                                                                                                                                                                                             В.Ј.,
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RESULT 12
Q9SKV1
ID Q9SKV
AC Q9SKV
DT 01-M,
DT 01-M,
DT 01-J,
DT 01-J,
DT 01-J,
DE F5J5
OS Arab
OC Euka
OC Sper
OC Euka
OC SPER
OC SPER
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RN [1]
RP SEQ
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                                                                                                        Query Match
Best Local S
Matches 14
                                                                                                                                                                                                                    InterPro; IPRO01882; Biotin_attach.

InterPro; IPRO01882; Biotin_ltoyl.

InterPro; IPRO0089; Biotin_ltoyl.

InterPro; IPRO00089; Biotin_ltoyl.

InterPro; IPRO000021; Carboxyl_trans.

InterPro; IPRO00901; CPSase.

InterPro; IPRO00901; Interpro; In
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Best Local S
Matches 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Chao Q., Shinn P., Buehler E., Kahn S., Kim C., Walker M., Williams S., Altafi H., Araujo R., Conn L., Conway A.B., Gonzalez A., Hansen N.F., Hulzar L., Kremenetskaia I., Lenz C., Li J., Liu S., Luros S., Rowley D., Schwartz J., Toriumi M., Vysotskaia V., Yu G., Davis R.W., Federspiel N.A., Theologis A., Ecker J.R.; "Genomic sequence for Arabidopsis thaliana BAC F5J5."; Submitted (JAN-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; AC006228; AAF18638.2; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAY-2000
01-MAR-2001
01-JUN-2002
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PROSITE;
PROSITE;
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Pfam;
Pfam;
Pfam;
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SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Arabidopsis thallana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embry.
Spermatophyta; Magnoliophyta; eudicotyledons;
eurosids II, Brassicales; Brassicaceae; Arabi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1818
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InterPro;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             n; PF02785; Biotin_carb_C; 1.
n; PF00364; biotin_lipoyl; 1.
n; PF01039; Carboxyl_trans; 1.
n; PF00289; CPSase_L_chain; 1.
n; PF02786; CPSase_L_D2; 1.
siTE; PS00211; ABC_TRANSPORTER; U
YLYQWLGAPVPYPDPLEPRREVCELNPD--CDELADHIGFQEAYRRFYGPV |: :: | : | | : | | | | | | :: :: | : | :
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                                                                                                                                            Similarity
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PS00867; CPSASE_2; UNKNOWN_1
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IPR000089;
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IPR000022; Carboxyl_trans.
IPR000901; CPSase.
IPR002016; Peroxidase.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (TremBLrel. 13, Created)
(TremBLrel. 16, Last seq
(TremBLrel. 21, Last ann
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                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                            22.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22.2%;
27.5%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12;
                                                                                                        12;
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                                                                                                                                         Score 63;
Pred. No.
                                                                                   Pred. No. 45,
2; Mismatches
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edons; core eudicots; Rosid
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ID Q93NW6
AC Q93NW6
AC Q93NW6;
DT 01-DEC-
DT 01-DEC-
DT 01-DEC-
DT 01-DEC-
CO 05 Strepto
OC Actinom
OX NCBI_Ta
RN [1]
RP SEQUENC
RA Caffrey
The amm
RT nndcosus
RI submitt
DR InterPr
DR Ffam; p
DR Pfam; p
RESULT Q09967 ID 907 ID 907 O11 DT 011 DT 01
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TIGRFAMS;
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InterPro;
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                                                                                                                                            None;
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"Genome sequence of the nematode C. elegans: a plinvestigating biology. The C. elegans Sequencing Science 282:2012-2018(1998).
                                                                                 SEQUENCE FROM N.A. STRAIN=BRISTOL N2; MEDLINE=99069613;
                                                                                                                                                  Eukaryota; Metazoa; Nemat
Rhabditidae; Peloderinae;
NCBI_TaxID=6239;
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01-NOV-1996 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
Hypothetical 62.2 kDa pr
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InterPro; IPR000794; Ketoacyl-synt.
InterPro; IPR003880; Ppantne_attach
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Caffrey P., Lynch S.V., Flood E.M., "The amphotericin biosynthetic gene
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                                                                                                                                                                                                       Caenorhabditis elegans
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1; PF00107; adh_zinc; 1.
1; PF00109; ketoacyl-synt; 6.
1; PF02801; ketoacyl-synt_C; 6.
1; PF00550; pp-binding; 6.
1; PF00550; pp-binding; 6.
1; PF00550; pp-binding; 6.
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PS00059; ADH_ZINC; UNKNOWN_1.
PS00606; B_KETOACYL_SYNTHASE; UNKNOWN_6.
PS00012; PHOSPHOPANTETHEINE; UNKNOWN_5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IPR001227; Ac_transferase.
IPR002328; ADH_zinc.
IPR002085; Adh_zn_family.
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21,
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Caenorhabditis.
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No. 3
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Streptomyces
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ID 092KK7

RC Q92KK7;

AC Q92KK7;

PT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)

DT 01-DEC-2001 (TrEMBLrel. 20, Last annotation update)

DT 01-MAR-2002 (TrEMBLrel. 20, Last annotation update)

DE Hypothetical signal peptide protein SMc00861.

GN R00845 OR SMC00861.

OS Rhizobium meliloti (Sinorhizobium meliloti).

OE Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;

Phizobiaceae; Sinorhizobium.
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A Boistard P., Becker A., Boutry M., Cadieu E., Dreano S., Gloux S.,

Bodrie T., Goffeau A., Kahn D., Kiss E., Lelaure V., Masuy D.,

A Pohl T., Portetelle D., Puehler A., Purnelle B., Ramsperger U.,

A Renard C., Thebault P., Vandenbol M., Weidner S., Galibert F.;

"Analysis of the chromosome sequence of the legume symbiont

Sinorhizobium meliloti strain 1021.",

Proc. Natl. Acad. Sci. U.S.A. 98:9877-9882(2001).

EMBL; AL591785; CAC45417.1; -.

InterPro; IPR001440; TFR.

Pfam; pF002515; TPR; 8.

W Hypothetical protein; Complete proteome.

SEQUENCE 609 AA; 67667 MW; D771F3E911E69542 CRC64;
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Best Local Similarity
Matches 17; Conserv
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Best Local Similarity
Matches 11; Conserv
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PROSITE; PS50068; LDLRA_2; 8.
Glycoprotein; Hypothetical protein.
SEQUENCE 574 AA; 62206 MW; 7405
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Favello A.;
"The sequence of C. elegans cosmid B0244.";
Submitted (JUN-1995) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Direct Submission.";
Submitted (JUN-2001) to the EMBL/GenBank/DDBJ databases.
EMBL, U28971; AA86876.1; -.
HSSP; P01130; 1LDR.
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STRAIN-BRISTOL N2;
417
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SUMMARIES

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45	44	43	42	41	40	39	38	37	36	ω 5	34	33	32	31	30
55.5	55.5	56	56	56	56	56	56.5	56.5	56.5	57	57	57	57	57	57.5
19.5	19.5	19.7	19.7	19.7	19.7	19.7	19.9	19.9	19.9	20.1	20.1	20.1	20.1	20.1	20.2
634	346	536	416	415	377	265	431	373	350	1561	726	376	265	214	409
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5-dehydro-2-deoxyg	8-hydroxy-guanine	probable transcrip	dermal gland prote	hypothetical prote	H+-transporting tw	ribosomal protein	hypothetical prote	erythroid transcri	hypothetical prote	acetyl-CoA carboxy	virulence-associat	H+-transporting tw	ribosomal protein	probable ubiquinol	hypothetical prote

ALIGNMENTS

N; Alternate Teocalcin precursor [validated] - human Alternate names: BGP; bone Gla protein; bone Gla protein; gamma-carboxyglutamic acid-containing 08-Dec-2000 prote

C;Species: Homo sapiens (man)
C;Date: 31-Dec-1980 #sequence_revision 07-Apr-1994 #text_change
C;Accession: S12652; C25471; A03301; S08694

R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.; Barr, P.J.

Nucleic Acids Res. 18, 1909, 1990
A;Title: The CDNA and derived amino acid sequences of human A;Reference number: \$12652; MUID:90245603; PMID:2336375
A;Accession: \$12652 and bovine bone Gla prote

A; Molecule type: mRNA

A; Residues: 1-100 <KIE>

R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney, J.M. EMBO J. 5, 1885–1890, 1986 A;Title: Isolation of the human gene for bone gla protein utilizing mouse and A;Reference number: A91045; MUID:87004555; PMID:3019668 A;Cross-references: EMBL:X53698; NID:g36092; PIDN:CAA37736.1; PID:g36093 R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney,

A; Accession: C25471

rat cDN

A; Molecule type: DNA
A; Residues: 1-32,35-100 <CEL>

A;Cross-references: EMBL:X04143; NID:g29449; PIDN:CAA27763.1; PID:g29450 R;Poser, J.W.; Esch, F.S.; Ling, N.C.; Price, P.A. J. Biol. Chem. 255, 8665-8691, 1980 A;Title: Isolation and sequence of the vitamin K-dependent protein from human A;Reference number: A03301; MUID:81006914; PMID:6967872 A;Accession: A03301 bone. U

A; Molecule type: protein A; Residues: 52-100 < POS>

R;Cairns, J.R.; Williamson, M.K.; Price, P.A. Anal. Biochem. 199, 93-97, 1991

A; Title: Direct identification of gamma-carboxyglutamic acid in the sequencing A; Reference number: A44566; MUID:92222128; PMID:1807167

C;Comment: This protein, isolated from bone, binds strongly to apatite. C;Comment: Alternative splicing may produce the sequence presented in r C;Comment: Glu-68 is gamma-carboxylated in 9-50% of the molecules.

reference

of.

A; Contents: annotation

A; Gene: GDB: BGLAP

A;Cross-references: GDB:118760; OMIM:112260 A;Map position: 1q25-1q31 A;Introns: 22/1; 35/1; 58/2

C;Superfamily: osteocalcin
C;Reywords: bone; calcium binding; carboxyglutamic acid; extracellular matrix
F;1-51/Domain: signal sequence #status predicted <SIG>
F;52-100/Product; osteocalcin #status experimental <MAT>
F;60/Modified site: 4-hydroxyproline (Pro) #status absent
F;60/Modified site: gamma-carboxyglutamic acid (Glu) (partial) #status experimental
F;72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental

#status

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N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic
C;Species: Macaca fascicularis (crab-eating macaque)
C;Date: 27-Nov-1985 #sequence_revision 27-Nov-1985 #text_change
C;Accession: A03302
                                                                                                                                                                                                                                                                                                       A;Cross-references: EMBL:x53699; NID:g719; PIDN:CAA37737.1; PID:g720
A;Note: alternative splicing may produce a sequence lacking residues 33-34
R;Price, P.A.; Poser, J.W.; Raman, N.
Proc. Natl. Acad. Sci. U.S.A. 73, 3374-3375, 1976
A;Title: Primary structure of the gamma-carboxyglutamic acid-containing protein
A;Reference number: A03303; MUID:77036749; PMID:1068450
A;Accession: A03303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            osteocalcin precursor - bovine
N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing
C;Species: Bos primigenius taurus (cattle)
C;Date: 24-Apr-1984 #sequence_revision 07-Apr-1994 #text_change 22-Jun-1999
C;Accession: S12653; A03303; S08693
R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.; Barr, P.J.
Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid sequences of human and bovine bone Gla
A;Reference number: S12652; MUID:90245603; PMID:2336375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Biochemistry 21, 638-642, 1982
A;Title: Primary structure of monkey osteocalcin.
A;Reference number: A03302; MUID:82182842; PMID:6
A;Accession: A03302
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Residues: 1-100 <KIE>
                                                                                          ;1-51/Domain: signal sequence #status predicted <SIG>;52-100/Product: osteocalcin #status experimental <MAT>;62-100/Product: osteocalcin #status experimental <MAT>;60/Modified site: 4-hydroxyproline (Pro) #status experimental 
                                                                                                                                                                                  Superfamily: osteocalcin binding; carboxyglutamic acid; hydroxyproline; Keywords: bone; calcium binding;
                                                                                                                                                                                                                                     ;Comment: This protein, isolated from bone, binds strongly to apatite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline; P/Modified site: 4-hydroxyproline (Pro) #status experimental; 17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
  Query Match
Best Local
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Pred. No. 2.1e-26;
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Pred. No. 6.5e-27;
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                     Proc. Natl. Acad. Sci. U.S.A. 82, 6109-6113, 1985
A;Title: The propeptide of rat bone gamma-carboxyglutamic acid
A;Reference number: A25167; MUID:85298305; PMID:3875856
A;Accession: A25167
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  A; Molecule type: mRNA
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N.Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing prote C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 22-Jun-1999
C;Accession: A31856; A31419; A32324; A25167; A25471
R;Yoon, K.; Rutledge, S.J.C.; Buenaga, R.F.; Rodan, G.A.
Blochemistry 27, 8521-8526, 1988
A;Title: Characterization of the rat osteocalcin gene: stimulation of promoter activi A;Reference number: A31856; MUID:89118266; PMID:3265336
A;Accession: A31856
                                                                                                                  A;Cross-references: GB:M25490; NID:g576530; PIDN:AAA53280.1; PID:g576531
R;Lian, J.; Stewart, C.; Puchacz, E.; Mackowiak, S.; Shalhoub, V.; Collart, D.; Zamb. Proc. Natl. Acad. Sci. U.S.A. 86, 1143-1147, 1989
A;Title: Structure of the rat osteocalcin gene and regulation of vitamin D-dependent A;Reference number: A32324; MUID:89145200; PMID:2784002
A;Accession: A32324
                                                                                                                                                                                                                                                                                                                                                                          A;Title: Molecular structure of the rat bone Gla protein A;Reference number: A31419; MUID:89251082; PMID:2785907 A;Accession: A31419
                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: GB:M23637; NID:g340986; PIDN:AAA41761.1; R;Theofan, G.; Haberstroh, L.M.; Price, P.A. DNA 8, 213-221, 1989
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R;Shimomura, H.; Kanai, Y.; Sanada,
J. Biochem. 96, 405-411, 1984
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A; Residues: 1-99 <THE>
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A; Residues: 1-99 < YOO>
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C;Species: Felis silvestris catus (domestic cat)
C;Date: 25-Feb-1985 #sequence_revision 25-Feb-1985 #text_change
                                                            A; Molecule type: DNA
A; Residues: 1-99 <LIA>
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                            A;Cross-references: GB:J04500;
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C.; Price, P.A.
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83.7%;
                                  NID: g205863; PIDN: AAA41764.1;
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Pred. No. 1.3e-21;
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                                                                                                                                                                                                                                                                                                                                                                                                                                          gene and identification
                                  PID: g205864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:g514962
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protein shares

homolog

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osteocalcin - emu
c; Species: Dromaius novaehollandiae (emu)
C; Date: 01-Dec-1989 #sequence_revision 01-Dec-1989 #text_
C; Accession: $02208
R; Huq, N.L.; Tseng, A.; Chapman, G.E.
Biochem. Int. 15, 271-277, 1987
A; Title: The amino acid sequence of emu osteocalcin: gas A; Reference number: $02208; MUID:88134266; PMID:3501719
A; Accession: $02208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline; pyroglutamic F;1/Modified site: pyrrolidone carboxylic acid (Gln) *status experimental F;9/Modified site: 4-hydroxyproline (Pro) *status experimental F;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) *status experimental F;23-29/Disulfide bonds: *status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Reference number: A61280;
A; Accession: A61280
A; Molecule type: protein
A; Residues: 1-49 <VIR>
C; Superfamily: osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic c;Species: Oryctolagus cuniculus (domestic rabbit) C;Date: 12-May-1994 #sequence_revision 02-Jun-1994 #text_change C;Accession: A61280 R;Virdi, A.S.; Willis, A.C.; Hauschka, P.V.; Triffitt, J.T. Blochem. Soc. Trans. 19, 3738, 1991 Blochem. Soc. Trans. 19, 3738, 1991 A;Title: Primary aminoacid sequence of rabbit osteocealcin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C:Superfamily: osteocalcin
C:Keywords: bone; calcium binding; carboxyglutamic acid;
C:Keywords: bone; calcium binding; carboxyglutamic acid;
F:1-21/Domain: signal sequence #status predicted <SIG>
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A;Residues: 1-99 <PAN>
A;Cross-references: GB:M1177; NID:g203147; PIDN:AAA40816.1; PID:g203148
R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney, J
EMBO J. 5, 1885-1890, 1986
EMBO J. 5, 1885-1890, 1986
A;Title: Isolation of the human gene for bone gla protein utilizing mouse
A;Reference number: A91045; MUID:87004555; PMID:3019668
A;Accession: A25471
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A; Residues: 1-99 <CEL>
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                       ;Molecule type:
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Best Local :
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Best Local :
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38; Conserv
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protein <HUQ>
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83.78;
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80.9%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 217; DB 1;
Pred. No. 3.1e-19;
4; Mismatches 3
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Pred. No. 2.9e-19;
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                                                                                                              A;Molecule type: DNA
A;Residues: 1-95 <CEL;
R;Desbois, C; Hogue, D.A.; Karsenty, G.
J. Biol. Chem. 269, 1183-1190, 1994
J. Biol. The mouse osteocalcin gene cluster contains three
A;Reference number: A49871; MUID:94117426; PMID:8288580
A;Accession: A49871
                                                                                                                                                                                                                                                                                      R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, EMBO J. 5, 1885-1890, 1986
A;Title: Isolation of the human gene for bone gla protein u A;Reference number: A91045; MUID:87004555; PMID:3019688
A;Accession: B25471
                                           A; Molecule type: DNA
A; Residues: 1-95 < RES>
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                    ;Cross-references:
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GB:L24429;

NID:g455452;

PIDN: AAA39854.1;

PID:g455453

from

GB/EMBL/DDBJ

genes with two separate

дs

utilizing mouse

and

rat

CDN

E.A.; Wozney, J.M.

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A; Molecule type: protein
A; Rolecule type: protein
A; Residues: 49-63,'1',65-77,'N',79-82,'EL',85-90,'Q',91-97
C; Comment: The gamma-carboxyglutamic acid residues formed b
C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding: carboxyglutamic acid
F; 49-97/Product: osteocalcin #status experimental CMAT's
F; 65,69,72/Modified site: gamma-carboxyglutamic acid (Glu)
F; 71-77/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:U10578; NID:g1008455; PIDN:AAA78809.1; R;Carr, S. A.; Hauschka, P. V.; Blemann, K. J. Biol. Chem. 256, 9944-9950, 1981. A;Title: Gas chromatographic mass spectrometric sequence determine; Gas chromatographic mass spectrometric sequence A;Reference number: A03305; MUID:82007831; PMID:6792200 A;Accession: A03305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C;Species: Gallus gallus (chicken)
C;Date: 15-Oct-1982 #sequence_revision 15-Aug-1997 #text_change
C;Accession: I50700; A03305
R;Neugebauer, B.M.; Moore, M.A.; Broess, M.; Gerstenfeld, L.C.;
J. Bone Miner. Res. 10, 157-163, 1995
A;Title: Characterization of structural sequences in the chicken
A;Reference number: I50700; MUID:95266465; PMID:7747623
osteocalcin precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change 20-Aug-1999
C;Accession: B25471; A49871; I61189
                                                                osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N; Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing
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A; Residues: 1-97 <NEU>
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Best Local S
Matches 35
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35; Conserv
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35; Conser
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81.4%;
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Pred. No. 2.8e
3; Mismatches
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by vitamin
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A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule: type: DNA
A;Residues: 1-3,'If',6-10,'T',12-95 <RE2>
A;Cross:references: GB:L24431; NID:g455456; PIDN:AAA39856.1; PID:g455457
C;Genetics:
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C;Superfamily: os
F;1-49/Domain: si
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C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change 20-Aug-1999
C;Accession: I53275
C;Accession: I53275
R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M.; Lian, J.B.; Stein, Endocrinology 133, 3050-3053, 1993
A;Title: Multiple copies of the bone-specific osteocalcin gene in mouse and rat A;Reference number: I53275; MUID:94062692; PMID:8243336
A;Accession: I53275
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                                                                                                                                                                                                                                                                      R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M.; Lian, J.B.; Stein, Endocrinology 133, 3050-3053, 1993
A;Title: Multiple copies of the bone-specific osteocalcin gene in mouse and rat A;Reference number: I3275; MUID:94062692; PMID:8243336
A;Accession: I67413
A;Status: preliminary; translated from GB/EMBL/DDBJ
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                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Mus sp. (mouse)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 20-Aug-1999
C;Accession: I67413
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A; Residues: 1-95 < RES>
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A; Residues: 1-95 < RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                           osteocalcin
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밁
                                                                                                                                                                                                                    A;Cross-references: GB:S67456; NID:g456855;
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                                 LYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYG 47
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    mouse

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                                                                            Similarity 63.
29; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           mouse
                                                                                                                                                            osteocalcin
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                                                                                              57.0%;
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; Pred. No. 7.8e
5; Mismatches
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Pred.
                                                                            core 162; DB 2
ced. No. 2.3e-1
Mismatches
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                                                                                                                                                                                                                      PIDN:AAB29146.1; PID:g456857
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.8e-13;
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J. Biol. Chem. 269, 1183-1190, 1994
A, Title: The mouse osteocalcin gene cluster contains thi
A; Reference number: A49871; MUID:94117426; PMID:8288580
A; Accession: I61188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 20-Aug-1999
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A;Residues: 1-47 <PRI2
A;Residues: 14, 24, and 37 were not positively identified
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid
C;Keywords: bone; calcium carboxyglutamic acid
F;13,17,20/Modified site: gamma-carboxyglutamic acid
F;19-25/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R;Price, P.A.; Otsuka, A.S.; Poser, J.W. in Calcium-binding Proteins and Calcium Function, Wasserman, A;Title: Comparison of gamma-carboxyglutamic acid-containing A;Reference number: A03306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing C;Species: Xiphias gladius (swordfish) C;Date: 30-Apr-1979 #sequence_revision 27-Nov-1985 #text_change 06-Sep-1996
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A; Residues: 1-95 < RE2>
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A; Accession: I49073
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A; Residues: 1-95 < RES>
  N; Alternate names: BGP; bone Gla protein; C; Species: Lepomis macrochirus (bluegill) C; Date: 31-Dec-1993 #sequence_revision 06-C; Accession: A42794 R; Nishimoto, S.K.; Araki, N.; Robinson, F. J. Biol. Chem. 267, 11600-11605, 1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Accession: A03306
R; Price, P.A.; Otsul
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                                                                                                                           bluegill
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63.0%;
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Pred. No. 2.3e-12;
7; Mismatches 10
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Pred. No. 2
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                                                                    06-Sep-1996 #text_change
                            F.D.; Waite, J.H
                                                                                                         gamma-carboxyglutamic
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R.H., Corradino, R.A., proteins from bovine ar

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prote

06-Sep-1996 acid-containing

0,

Gaps

0;

experimental

95

0;

Gaps

0;

PID:g455455

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protein F5J5.19 [imported] - Arabidopsis thaliana
(;Species: Arabidopsis thaliana (mouse-ear cress)
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 24-Aug-2001
C;Accession: D86483
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso, Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;
Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;
ansen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 2000
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.
C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali,
Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon,
ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.
A;Reference number: A86141; MUID:21016719; PMID:11130712
A;Accession: D86483
A. Schauer, M.; Condition of the plant Arabidopsis.
A;Accession: D86483
A. Schauer, M.; Muid: Mui
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C:Keywords: bone; calcium binding; carboxyglutamic acid; vitamin K
F:4/Modified site: gamma-carboxyglutamic acid (Glu) #status absent
F:11,15,18/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
F:17-23/Disulfide bonds: #status predicted
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A;Experimental source: bone; mineralized scale A;Note: sequence extracted from NCBI backbone (NCBIP:104759)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: DNA
A;Residues: 1-2257 <5T0>
A;Cross-references: GB:AE005172; NID:g12039052; PIDN:AAF18638.2; GSPDB:GN00141
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Search completed: December Job time : 20 secs
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12; Mismatches
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1: /cgn2_6/ptodatta/2/paa/PCT_NEW_COMB.pep:*

2: /cgn2_6/ptodatta/2/paa/US06_NEW_COMB.pep:*

3: /cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*

4: /cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*

5: /cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*

6: /cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*

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                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 90318
LENGTH: 58
                                                                                                                                                                                                                                                            Sequence 90318, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 1
LENGTH: 100
TYPE: PRT
ORGANISM: Homo sapiens
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Best Local Similarity
Matches 49; Conserv
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CURRENT APPLICATION NUMBER: US/10/283,656
CURRENT FILING DATE: 2002-10-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: EKEMA, George Mbella
APPLICANT: MAYS, Robert W.
APPLICANT: BRUNDEN, Kurt R.
TITLE OF INVENTION: Methods for Using Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQ ID NOS:
                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                     52 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 100
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                                                                                                             sapiens
                                   85.2%;
97.7%;
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                 Score 242; DB 5;
Pred. No. 3.4e-22;
0; Mismatches 1;
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Pred. No. 5.6e-27;
Mismatches 0;
                                                    Length 58;
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US-09-724-676A-90318
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APPLICANT: Itoh, Nobuyuki
APPLICANT: Kavanaugh, W. Michael
APPLICANT: Kavanaugh, W. Michael
TITLE OF INVENTION: HUMAN FGF-23 GENE AND GENE
TITLE OF INVENTION: PRODUCTS
FILE REFERENCE: PP-17149.001/201130.409
CURRENT APPLICATION NUMBER: US/09/802,154
CURRENT FILING DATE: 2001-03-07
                                                                                      Sequence 2, Application US/10096246
GENERAL INFORMATION:
APPLICANT: The Minister of National Defence,
APPLICANT: Fulton, R E
APPLICANT: Alvi, Azhar E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 46
SOFTWARE: FRSTSEQ for Windows Version 4.0
SEQ ID NO 21
LENGTH: 13
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SEQ ID NO 90318
LENGTH: 58
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Best Local :
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                              APPLICANT: Nagata, Leslie
TITLE OF INVENTION: Cloning, Expression, Sequencing,
TITLE OF INVENTION: SCFV Antibody Against Venzuelan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: 129181.4 Compugen CURRENT APPLICATION NUMBER: US/09/724,676A CURRENT FILING DATE: 2000-11-28 NUMBER OF SEQ ID NOS: 97222
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                 FILE REFERENCE: NEL-0007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM: Artificial Sequence
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                                                                                                                                                                                                                                                                                             7 GAPVPYPDPLEPR 19
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NUMBER: US/10/096,246
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Pred. No.
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Pred. No. 3.4e-22;
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J. 0.0052;
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                                    and Functional Enhancement of Mc
Equine Encephalitis Virus (Vee)
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RESULT 8 PCT-US02-32727-3145

Sequence 3145, Application PC/TUS0232727

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US-09-724-676A-48669
; Sequence 48669, Application US/09724676A
; GENERAL INFORMATION:
: APPLICANT: Compugen LTD
: TITLE OF INVENTION: Variants of alternative splicing
: FILE REFERENCE: 129181.4 Compugen
: CURRENT APPLICATION NUMBER: US/09/724,676A
: CURRENT FILING DATE: 2000-11-28
: NUMBER OF SEQ ID NOS: 97222
: SOFTMARE: PatentIn version 3.2
: SEQ ID NO 48669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; CURRENT FILING DATE: 2002-03-13; NUMBER OF SEQ ID NOS: 37; SOFTWARE: PatentIn version 3.1; SEQ ID NO 2; LENCTH: 257; TYPE: PAT ; ORGANISM: Mouse hybridoma cell US-10-096-246-2
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                                                                                                    ; ORGANISM: Homo sapiens US-09-724-676A-48669
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Best Local Similarity 36.8
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LENGTH: 314
TYPE: PRT
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Best Local Similarity
Matches 13; Conserv
                                                     Query Match
Best Local Similarity
                                        Matches
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                                                                                                                                  LENGTH: 314
TYPE: PRT
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8 APVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRF 45
                                                                                                                                                                                                                                                                                                                                                                                 APVPVPVPVPDWRQFCELHAQ----AAAVDFAHKFCRF
                                      14;
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                                        Conservative
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                                                      20.1%;
                                     Score 57; DB Pred. No. 21; 5; Mismatches
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GENERAL INFORMATION:

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PCT-US02-32727-3145
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TYPE: PRT
                                                                                                                                                                      NUMBER OF SEQ ID NOS: 30992
SEQ ID NO 11781
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 11781, Application PC/TUS0232727 GENERAL INFORMATION:
                                                          Matches
                                                                     Query Match
Best Local Similarity
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                                                                                                                                                                                                 APPLICANT: Douglass, John
TITLE OF INVENTION: Compositions and Methods
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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APPLICANT:
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TITLE OF INVENTION: Compositions and Methods for the Therapy and Diagnosis
FILE REFERENCE: 210121.514C1
CURRENT APPLICATION NUMBER: PCT/US02/32727
CURRENT FILING DATE: 2002-10-11
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                                                                                                                                           TYPE: PRT
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                          1 YLYOWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGP 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 YOWLGAPVPY-------PDPLE--PRREVCELNPDC 29
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Barth, Brenda
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Bhatia, Ajay
Maisonneuve, Jean Francois
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Jen, Shyian
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Bhatia, Ajay
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Barth, Brenda
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Jones, Robert
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                                                       Conservative
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                                                                    19.0%;
                                                     Score 54; DB:
Pred. No. 15;
5; Mismatches
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Pred. No. 14;
7; Mismatches
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                                                                     DB 1; Length 92; 15;
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                                                       Indels
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RESULT 12
US-09-724-676-93284
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US-09-724-676-93283
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US-09-724-676-93283
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US-09-724-676-93282
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US-09-724-676-93282
                                                                        US-09-724-676-93284
                                                                                                                                                                    Sequence 93284, Application us/v....
Sequence 93284, Application us/v...
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT SPILING DATE: 2000-11-28
                                                                                                                     NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 93284
LENGTH: 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 97222
SOFTWARE: Patentin version 3.2
SEQ ID NO 93283
LENGTH: 194
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 93283, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000.11-28
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SOFTWARE: Patentin version 3.2
SEQ ID NO 93282
LENGTH: 194
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CURRENT FILING DATE: 2000-11-28
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TITLE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
                                                                                 TYPE: PRT
ORGANISM: Homo sapiens
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93 APTP-PRPALPRRFICSF-PDCSANYSKAWKLDAHLCKHTG 131

APVPYPDPLEPRREVCELNPDCD-----ELADHIG 37

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RESULT 15
US-09-724-676-93287
US-09-724-676-93287, Application US/09724676
Sequence 93287, Application US/09724676
GENERAL INFORMATION:
APPLICANT: Compugen LTD
FILE OF INVENTION: Variants of alternative splicing
FILE REFERENCE: 129181.4 Compugen
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT APPLICATION NUMBER: US/09/724,676
CURRENT FILING DATE: 2000-11-28
NUMBER OF SEQ ID NOS: 97222
SOFTWARE: PatentIn version 3.2
SEQ ID NO 93287
LENGTH: 194
TYPE: PRT
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US-09-724-676-93285

; Sequence 93285, Application US/09724676

; GENERAL INFORMATION:

; APPLICANT: Compugen LTD

; TITLE OF INVENTION: Variants of alternative splicing

; FILE REFERENCE: 129181.4 Compugen

; CURRENT APPLICATION NUMBER: US/09/724,676

; CURRENT FILING DATE: 2000-11-28

; NUMBER OF SEQ ID NOS: 97222

; SOFTWARE: Patentin version 3.2

; SEQ ID NO 93285

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US-09-724-676-93286
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SEQ ID NO 93286
LENGTH: 194
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Search completed: December 4, 2002, 15:37:41 Job time : 12 secs

Copyright GenCore version (c) 1993 - 2002 Compugen 5.1.3 Ltd

OM protein - protein search, using sw model

Run 9 December 4 2002, 14:55:59; ; Search time 11 Seconds
(without alignments)

184.758 Million cell updates/sec

Title: Perfect score: Sequence: US-09-462-931-2 284 1 YLYQWLGAPVPYPI YLYQWLGAPVPYPDPLEPRR.....DELADHIGFQEAYRRFYGPV

Scoring table: BLOSUM62 Gapop 10.0 ,

Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum 멂 seq length: (0

Maximum 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100% Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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•		P03383 human t-cel					Q01908 arabidopsis					

RESULT 1 OSTC_HUN P02818; _HUMAN STANDARD; PRT; 100 AA

ALIGNMENTS

21-JUL-1986 (Rel. 01, Created)
01-AUG-1990 (Rel. 15, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic acid-containing protein)
(Bone Gla-protein) (BGP)

BGLAP.

Homo sapiens (Human). Eukaryota; Metazoa; C Mammalia; Eutheria; F NCBI_TaxID=9606; Chordata; Primates;

Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.

SEQUENCE FROM N.A.

MEDLINE=90245603; PubMed=2336375;

Kiefer M.C., Saphire A.C.S., Bauer D.M., Barr P.J.;

"The cDNA and derived amino acid sequences of human
Gla protein."; and bovine bone

Gla protein. Nucleic Acids Res. 18:1909-1909(1990).

SEQUENCE FROM N.A.

MEDLINE-87004555; PubMed-3019668;

Celeste A.J., Buecker J.L., Kriz R., Wang E.A., Wozney J.M.;

Celeste A.J., Buecker J.L., Kriz R., Wang E.A., Wozney J.M.;

"Isolation of the human gene for bone gla protein utilizing mouse and rat cDNA clones.";

EMBO J. 5:1885-1890(1986).

SEQUENCE OF 52-100.

bone. Undercarboxylation of the first glutamic J. Biol. Chem. 255:8685-8691(1980)... MEDLINE-81006914; PubMed-6967872;
Poser J.W., Esch F.S., Ling N.C., Price P.A.;
"Isolation and sequence of the vitamin K-dependent protein from human acid residue.

-!- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.
-!- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE BINDING OF CALCIUM. S ARE FORMED BY VITAMIN ARE ESSENTIAL FOR THE

SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN FAMILY.

use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and foorest its requires a license agreement (See http://www.isb-sib.or.send an email to license@isb-sib.ch). EMBL; X53698; EMBL; X51699; EMBL; X04143; PIR; A03301; G PIR; C25471; C This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -; CAA37736.1; -. ; CAA35996.1; -. ; CAA27763.1; -. restrictions for 9 0 way

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-i- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE STRONGLY TO APATITE AND CALCIUM.
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Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
Cercopithecinae; Macaca.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-JUI-1986 (Rel. 01, Created)
21-JUI-1986 (Rel. 01, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
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"Primary structure of monkey osteocalcin.";
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InterPro; IPR000294; VitK_dep_
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genew;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52
                                                                                                                                                                                                                                                                                                                                                                               FAMILY.
; A03302; GEMKI
                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTM: GAMMA-CARBOXYGLUTAMIC ACID DEPENDENT CARBOXYLATION. THESE F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING OF CALCIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; PR00002; GLABONE.
SM00069; GLA; 1.
E; PS00011; GLU_CARBOXYLATION;
                                                                                                                                                                                                                                        ; PR00002; GLABON
SM00069; GLA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          49; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HGNC:1043; BGLAP
                                                                                                                                                                                                                     PS00011;
49 AA;
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75
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; GLU_CARBOXYLATION; 1.
Gamma-carboxyglutamic acid; Vitamin 23 PROBABLE.
                                                                                                                                                                                   ; GLU_CARBOXYLATION; 1. Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                          GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed-6978733;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23
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                                                                                                                                                                                                                                                                                                                             GLA_bone.
VitK_dep_GLA
X
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; 4DF2A0A80849CB71 CRC64;
                                               HYDROXYLATION.
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULES).
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                      ВҮ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 284; UB 1,
Pred. No. 7.4e-29;
C20116014D0C4958 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OSTECCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                          OSTEOCALCIN /
                            SIMILARITY
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49
                                                                                                                                                                                         acid;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S ARE
ARE E
                                                                                                                                                                                         Vitamin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ESSENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FORMED BY VITAMIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
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ACID.
ACID.
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ACID
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                                                                                                                                                                                         <u>.</u>
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                                                                                                                                                                                         Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (IN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IT BINDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
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Best Local S
Matches 46
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Best Local S
Matches 47
                                                                                                                                                                                                                           Hydroxylation.

MOD_RES 9

MOD_RES 17

MOD_RES 21

MOD_RES 24

DISULFID 23

EQUENCE 49 #
                                                              OSTC_BOVIN
P02820;
21-JUL-1986
01-AUG-1990
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HORSE
OSTC_HO
P83005;
                                                                                                                                                                                                                                                                                                                                                                                                 Ann.
        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                             Osteocalcin precur: (Bone Gla-protein)
                                                                                                                BOVIN
                                                                                                                                                                                                                                                                                            PROSITE; PS00011 Calcium binding;
                                                                                                                                                                                                                                                                                                                                                                                                               "Isolation and characterization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa; Chordata; Crania
Mammalia; Eutheria; Perissodactyla;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence
15-JUN-2002 (Rel. 41, Last annotati
Osteocalcin (Gamma-carboxyglutamic
                           Bos taurus (Bovine).
                                      BGLAP
                                                                                                                                                                                                                                                                                                               Pfam; PF00594; gla; 1.
SMART; SM00069; GLA; 1.
                                                                                                                                                                                                                                                                                                                                                                               ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=Bone;
                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE, HYDROXYLATION,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Equus caballus (Horse).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein) (BGP).
                                                                                                                                                     Н
                                                                                                                                                              _
                                                                                                                                                                                                                                                                                                                                                           strongly to apatite and calcium. PTM: Gamma-carboxyglutamic acid residues dependent carboxylation. These residues binding of calcium.
                                                                                                                                                                                                                                                                                                                                                                                                FUNCTION: Constitutes 1
                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                          FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HORSE
                                                                                                                                                    YLDHWLGAPAPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                          46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity
47; Conserv
                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                      PS00011;
                                                                                                                                                                                                                                                                                                                               IPR000294; VitK_dep_GLA
                                                               (Rel. 01,
(Rel. 15,
(Rel. 41,
                                                     precursor
                                                                                                                                                                                          Conservative
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                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                            ; GLU_CARBOXYLATION; 1. Gamma-carboxyglutamic
                                             15, Last sequence update)
41, Last annotation update)
sor (Gamma-carboxyglutamic (BGP).
                                                                                                                                                                                                                              5732 MW;
        Chordata; Craniata; Vertebrata; Cetartiodactyla; Ruminantia; Pec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata; Craniata; Vertebrata;
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                                                                                                                                                                                                 93.3%;
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95.9%;
                                                                                    Created)
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                                                                                                                                                                                                                                                                                                                                                                                                                                               AND GAMMA-CARBOXYGLUTAMIC ACIDS
                                                                                                                                                                                                                                                                                                                                                                                                1-2% of the
                                                                                                                                                                                                                                                                                                                                                                                                                            Amory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 277; DB Pred. No. 2.5e 1; Mismatches
                                                                                                                                                                                         0;
                                                                                                                                                                                        Score 265; DE Pred. No. 7.9e 0; Mismatches
                                                                                                                                                                                                                                               GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                        BY SIMILARITY
                                                                                                                                                                                                                              A5B826014D12857F CRC64;
                                                                                                                                                                                                                                                                             HYDROXYLATION
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                                                                                                                                                                                                                                                                                                                                                                                                                   y H
of
                                                                                                                                                                                                                                                                                                                                                                                                                  equine osteocalcin.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ion update)
acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Equidae; Equus
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                                                                                                       100
                                                                                                                                                                                                                                                                                                                                                                                               total bone protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                                                                                              acid;
                                                                                                                                                                                        DB 1; I
.9e-27;
les 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
.5e-28;
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                                                       acid-containing
                                                                                                                                                                                                                                                                                             Vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 49;
                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                     essential
          Pecora;
                                                                                                                                                                                                                                                                                                                                                                               formed by
                                                                                                                                                                                          Indels
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                                                                                                                                                                                                                                                ACID.
ACID.
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                   Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Euteleostomi;
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                                                                                                                                                                                                                                                                                                                                                                                                 It binds
                                                                                                                                                                                                                                                                                                                                                                               vitamin
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                                                      protein)
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Best I
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                                  OSTC_CANFA
P81455;
15-DEC-1998
15-DEC-1998
15-JUN-2002
Osteocalcin
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MOD_RES
MOD_RES
MOD_RES
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR;
             protein) (BGP).
BGLAP.
                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; X53699; CAA37737.1;
EMBL; X51700; CAA35997.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=77036749; PubMed=1068450;
Price P.A., Poser J.W., Raman N.;
"Primary_structure of the_gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                             CHAIN
                                                                                                                                                                                                                                                                                                                                                    SIGNAL
                                                                                                                                                                                                                                                                                                                                                                  Bone;
                                                                                                                                                                                                                                                                                                                                                                                                    SMART; SM00069; GLA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00594; gla; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gla protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE-90245603; PubMed-2336375; Kiefer M.C., Saphire A.C.S., Baue
                                                                                                                                                                                                                                                                                                                                                                                       PROSITE; PS00011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Proc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "The cDNA and derived amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=9913;
                                                                                                                       u
                                                                                                                                                            52
                                                                                                                                                                                                                   Local
                                                                                                                                                                   1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tein from bovine bone.";

C. Natl. Acad. Sci. U.S.A. 73:3374-3375(1976).

FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BIN STRONGLY TO APATITE AND CALCIUM.

PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAN DEPENDENT CARROXYLATION. THESE RESIDUES ARE ESSENTIAL FOR TH BINDING OF CALCIUM.

SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FAMILY.
                                                                                                                                               YLDHWLGAPAPYPDPLEPKREVCELNPDCDELADHIGFQEAYRFYGPV 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                            A03303; GEBO.
S12653; S12653.
familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                             PR00002;
                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Acids Res. 18:1909-1909(1990).
                                (Rel. 37, Created)
(Rel. 37, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-con
                                                                                                                                                                                                                                                       L00 AA;
                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                            24
52
60
68
72
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                                                                                              STANDARD;
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OSTEOCALCIN.
HYDROXYLATION.
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
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                                ion update) acid-containing
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.2e-26;
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es of
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ACID.
                                  protein)
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Best Local S
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21-JUL-1986
21-JUL-1986
15-JUN-2002
Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; (Mammalia; Eutheria; (NCBI_TaxID=9615; [1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOD_RES
MOD_RES
MOD_RES
MOD_RES
DISULFID
SEQUENCE
                                                                                                                                                         "Primary structure of cat osteocalcin.";

J. Blochem. 96:405-411(1994).

-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.

-I- PTW: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE
                    InterPro; IPR002384;
InterPro; IPR000294;
Pfam; PF00594; gla; 1
                                                                                                                                                                                                                                                                         MEDLINE=85054706; PubMed=6334077; Shimomura H., Kanai Y., Sanada K.;
                                                                             PIR; A03304; GECT
                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9685;
                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                           Felis silvestris catus (Cat).
Eukaryota; Metazoa; Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                    BGLAP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      canine bone. ";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-93318657; PubMed-8101026; Colombo G., Fanti P., Yao C., Mal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -
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                                                                                                                    BINDING OF CALCIUM. SIMILARITY: BELONGS
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PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES //
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FUNCTION: CONSTITUTES
                                                                                                   FAMILY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BINDING OF CALCIUM
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43; Conserv
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E; PS00011; GLU_C
  F00594; gla; PR00002; GL
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel. 01, Created)
(Rel. 01, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
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                                                                                                                                                                                                                                                                                                                                                                         Chordata; Craniata; Vertebrata; Carnivora; Fissipedia; Felidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8:733-743(1993)
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87.8%;
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VitK_dep_GLA
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                                                                                                                      THE OSTEOCALCIN /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 244;
Pred. No. 3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  43121D015817CEA6 CRC64;
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                                                                                                                      MATRIX
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein)
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Canis.
                                                                                                                      GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                         Euteleostomi;
Felis.
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Best Local
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13-AUG-1987
13-AUG-1987
15-JUN-2002
Osteocalcin
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MOD_RES
MOD_RES
MOD_RES
DISULFID
SEQUENCE
                                                                                               SEQUENCE FROM N.A.

MEDLINE=89145200; PubMed=2784002;
Lian J., Stewart C., Puchacz E., M.
Collart D., Zambetti G., Stein G.;
"Structure of the rat osteocalcin'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART; SM00069; (PROSITE; PS00011 Calcium-binding;
                                          dependent expression.";
Proc. Natl. Acad. Sci. U.S.A.
-!- FUNCTION: CONSTITUTES 1-28
                                                                                                                                                                                                                                                                                                                                                   MEDILINE-89118266; PubMed-3265336; Yoon K., Rutledge S.J.C., Buenaga R.F., Rodan G.A.; "Characterization of the rat osteocalcin gene: stimulation promoter activity by 1,25-dihydroxyvitamin D3."; Biochemistry 27:8521-8526(1988).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bone.
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SEQUENCE FROM N.A.
MEDLINE-87004555; PubMed-3019668;
Celeste A.J., Buecker J.L., Kriz
"Isolation of the human gene for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAT
                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE=89251082; PubMed=2785907;
Theofan G., Haberstroh L.M., Price P.A.;
"Molecular structure of the rat bone Gla
identification of putative regulatory ele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "The propeptide of rat bone gamma-carboxyglutamic acid protein shares homology with other vitamin K-dependent protein precursors."; proc. Natl. Acad. Sci. U.S.A. 82:6109-6113(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          rat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=10116;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       13-AUG-1987 (Rel. 05, Created)
13-AUG-1987 (Rel. 05, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic (Bone Gla-protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OSTC_RAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM
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Pan L.C., Price P.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rattus norvegicus
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                      FUNCTION: CONSTITUTI
STRONGLY TO APATITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cDNA clones."
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E; PS00011; GL(
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5:1885-1890(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
tl. Acad. Sci. U.S.A. 86:1143-1147(1989)
TION: CONSTITUTES 1-28 OF THE TOTAL BONE
NGLY TO APATITE AND CALCIUM.
GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metazoa; Chori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=3875856;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GLU_CARBOXYLATION;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chordata;
Rodentia;
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
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                                                                                                   gene
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.5e-23;
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                                                                                                                                          Shalhoub
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ACID.
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Murinae; Rat
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                                          BINDS
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REAL STATES
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Best Local S
Matches 38
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EMBL; M1177; AAA40816
EMBL; M25490; AAA53280
EMBL; M25490; AAA53280
EMBL; J04500; AAA41764
PIR; A25167; GERT.
PIR; A25471; A25471.
PIR; A31856; A31856.
PIR; A31419; A31419.
SEQUENCE.
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SEQUENCE.
SEQUENCE.

MEDLINE=92175242; PubMed=1794506;
Virdi A.S., Willis A.C., Hauschka P.V., T.

"Primary aminoacid sequence of rabbit ost
"Primary aminoacid sequence of rabbit ost
"Primary aminoacid sequence of rabbit ost
                                                                                                                      P39056;
01-FEB-1995
01-FEB-1995
15-JUN-2002
Osteocalcin
                                                                         Eukaryota;
Mammalia; I
                                                                                                                                                                               RABIT
                                                                                                                                                                                                                                                                                              DISULFID SEQUENCE
                                                                                                                                                                                                                                                                                                                                                               CHAIN
MOD_RES
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS;
SMART; S
                                                                                                                                                                                                                                                                                                                                                                                            SIGNAL
PROPEP
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                                                            Mammalia; Eutheria; NCBI_TaxID=9986;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; 91a; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                           MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    between the Swiss Institute of Bioinfo
the European Bioinformatics Institute.
                                                                                            Oryctolagus
                                                                                                              (Bone
                                                                                                                                                                                                                                                                                                                                             MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                        Calcium-binding;
                                                                                                                                                                                          ω
                                                                                                                                                                                                                     50
                                                                                                                                                                                                                   BINDING OF CALCIUM. SIMILARITY: BELONGS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEPENDENT CARBOXYLATION. BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SWISS-PROT entry is copy
een the Swiss Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A32324; A32324
                                                                                                                                                                      RABIT
                                                                                                             Gla-protein)
                                                                                                                                                                                                                                                                                                                                                                                                              Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                          SM00069; GLA;
                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                   PR00002;
                                                                                                                                                                                                                                                                                                                                                                                                                                  PS00011;
                                                                                  Metazoa;
                                                                                                                                                                                                                                                                                                99
                                                                                                            (Rel. 31, Created)
(Rel. 31, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing rotein) (BGP).
                                                                                  cuniculus (Rabbit).
Metazoa; Chordata; Craniata;
                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAA27761.1;
; AAA40816.1;
; AAA41761.1;
; AAA53280.1;
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                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                       ; GLU_CARBOXYLATION; 1.
Gamma-carboxyglutamic acid; Vitamin
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                                                                                                                                                                                                                                                                                                10927
                                                                        Lagomorpha;
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                                                                                                                                                                                                                                                         Score 220; DB
Pred. No. 7.6e
3; Mismatches
                                                                                                                                                                                                                                                                                                                                             HYDROXYLATION.
GAMMA-CARBOXYGLUTAMIC
(BY SIMILARITY).
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    THESE
                                                                                                                                                                                                                                                                                                        (BY SIMILARITY).
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                           GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                    OSTEOCALCIN
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                                                                                                                                                                                                                                                                                                                                     (BY SIMILARITY).
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                                                                        Leporidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESIDUES
                 osteocalcin.";
                                                                                                                                                                       49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (See http://www.isb-sib.ch/announce/
                          Triffitt J.
                                                                                  Vertebrata;
                                                                                                                                                                                                                                                      .6e-21;
6;
                                                                                                                                                                                                                                                                            DB
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                                                                         Oryctolagus
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                                                                                                                       protein)
                                                                                  Euteleostomi;
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RESULTANCE OF SERVICE 
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Best Local S
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15-JUN-2002
Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OSTC_DRONO
P15504;
01-APR-1990
                                                                                                                                                                                                                                                                                       "The amino acid sequence of Emu osteocalcin: gas phase sequencing Gla-containing proteins.";
Biochem. Int. 15:271-277(1987).

1- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.

1- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bone.
MOD_RES
MOD_RES
MOD_RES
MOD_RES
PRINTS; PRO0002; GLABONE.
SMART; SM00069; GLA; 1.
PROSITE; PS000011; GLU_CARBOXYLATION; 1.
Calcium-binding; Gamma-carboxyglutamic acid; Vitami MOD_RES
16 16 GAMMA-CARBOXYGLUTAMIC MOD_RES
20 20 GAMMA-CARBOXYGLUTAMIC MOD_RES
23 23 GAMMA-CARBOXYGLUTAMIC GARBOXYGLUTAMIC MOD_RES
23 23 GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Palaeognathae; Casuariiformes; Dromaiidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein) (BGP).
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InterPro; IPR000294;
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                                                                                                                                                 Pfam; PF00594; gla; 1.
                                                                                                                                                                                                                PIR; S02208; S02208.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=88134266; PubMed=3501719;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=8790;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Dromaius novae-hollandiae (Emu).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BGLAP
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                                                                                                                                                                    InterPro; IPR002384; InterPro; IPR000294;
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.; A61280; A61280.
                                                                                                                                                                                                                                                       BINDING OF CALCIUM.
SIMILARITY: BELONGS
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SIMILARITY: BELONGS
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PTM: GAMMA-CARBOXYCLUTAMIC ACID RESIDUES ARE DEPENDENT CARBOXYLATION. THESE RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
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(Rel. 14,
(Rel. 41,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 14, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
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GAMMA-CARBOXYGLUTAMIC AC GAMMA-CARBOXYGLUTAMIC AC GAMMA-CARBOXYGLUTAMIC AC BY SIMILARITY.
7B218871F0312253 CRC64;
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Pred. No. 8.1e-21;
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InterPro; IPR000294; VitK_dep_GLA.

R Pfam; PF00594; 9la; 1.

R PRINTS; PR00002; GLABONE.

NR SMART; SM00069; GLA; 1.

DR PROSITE; PS00011; GUU_CARBOXYLATION; 1.

OR PROSITE; PS00011; GUU_CARBOXYLATION; 1.

OR PROSITE; PS00011; GUU_CARBOXYLATION; 1.

OR PROSITE; PS00011; GUU_CARBOXYLATION; 1.
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between
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21-JUL-1986 (Rel. 01, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic acid-containing protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      osteocalcin, a gamma-carboxyglutamic chicken bone.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Characterization of structural sequences in the gene: expression of osteocalcin by maturing osteo hypertrophic chondrocytes in vitro.";
J. Bone Miner. Res. 10:157-163(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN-White leghorn; TISSUE-Bone; MEDLINE-95266465; PubMed-7747623; Neugebauer B.M., Moore M.A., Broes Hauschka P.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHICK
                                                                                                                                                                                                                                EMBL; U10578; AAA78809.1;
                                                                                                                                                                                                                                                             or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                           entities requires a
                                                                                                                                                                                                                                                                                                               modified and this statement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIINE-82007831; rubmet ...
Carr S.A., Hauschka P.V., Biemann K.;
"Gas chromatographic mass spectrometric sequence determination
"Gas chromatographic mass spectrometric sequence determination
"Gas chromatographic mass spectrometric sequence determination
"Gas chromatographic mass spectrometric acid-containing protein for the sequence of the sequen
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Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biol. Chem. 256:9944-9950(1981).
FUNCTION: CONSTITUTES 1-2% OF THE TOTAL ISTRONGIATO APATITE AND CALCIUM.
PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES
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SIMILARITY: BELONGS
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Pred. No. 1.4e-18;
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 P04641;
13-AUG-1987
01-OCT-1996
15-JUN-2002
Osteocalcin
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MOD_RES
DISULFID
SEQUENCE
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MOD_RES
MOD_RES
DISULFID
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Cancela M., Williamson M.K., Price P.A.;
Cancela M., Williamson M.K., Price P.A.;
"Amino-acid sequence of bone Gla protein from
Xenopus laevis and the fish Sparus aurata.";
Int. J. Pept. Protein Res. 46:419-423(1995).
-1- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BO-
STRONGLY TO APATITE AND CALCIUM.
-1- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES A
                                                                            MOUSE
OSTC_MOUSE
                                                                                                                                                                                                                                                                                                                                     PRINTS; PRO0002; GLABONE.

SMART; SM00069; GLA; 1.

PROSITE; PS00011; GLU_CARBOXYLATION; 1.

Calcium-binding; Gamma-carboxyglutamic acid; Vitamin Calcium-binding; Gamma-Carboxyglutamic acid; Vitamin MOD_RES 17 17 GAMMA-CARBOXYGLUTAMIC AC
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01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR002384;
InterPro; IPR000294;
Pfam; PF00594; gla;
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NCBi_TaxID=8355;
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Xenopus laevis (African clawed frog)
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33; Conserv
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 (Rel. 05,
(Rel. 34,
(Rel. 41,
precursor
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94.3%;
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81.4%;
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Created)
Last sequence update)
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(Gamma-carboxyglutamic
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GAMMA-CARBOXYGLUTAMIC ACII
GAMMA-CARBOXYGLUTAMIC ACII
BY SIMILARITY.
1; 768E6885C3327D62 CRC64;
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Pred. No. 6.2e
1; Mismatches
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Pred.
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
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No. 1.2e-16;
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EMBL; X04142; CAA27762.1; -.
EMBL; S67455; AAB29145.1; -.
EMBL; L24429; AAA39854.1; -.
EMBL; L24431; AAA39856.1; -.
EMBL; U11542; AAB40035.1; -.
PIR; B25471; B25471.
MGD; MGI:88156; B91ap1.
MGD; MGI:88157; B91ap2.
InterPro; IPR002384; GLA_bone.
InterPro; IPR002384; GLA_bone.
InterPro; IPR002394; VitK_dep_GLA.
Pfam; PF00594; 91a; 1.
PRINTS; PR000069; GLABONE.
SMART; SM00069; GLA; 1.
CRICARDONYINTIN.
                                       SIGNAL
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CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                use by non-profit institutions as long modified and this statement is not removed. entities requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN-C57BL/GJ; TISSUE-Calvaria;
Yotov W.V., St Arnaud R.;
Submitted (JUL-1994) to the EMBL/GenBank/DDBJ .
1- FUNCTION; CONSTITUTES 1-2% OF THE TOTAL BO STRONGLY TO APATITE AND CALCIUM.
1- TISSUE SPECIFICITY; BONE.
1- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES A DEPENDENT CARBOXYLATION. THESE RESIDUES AR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desbois C., Hogue D.A., Karsenty G.;
"The mouse osteocalcin gene cluster contains three separate spatial and temporal patterns of expressic J. Biol. Chem. 269:1183-1190(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        rat."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-87004555; PubMed-3019668; MEDLINE-87004555; PubMed-3019668; Celeste A.J., Buecker J.L., Kriz "Isolation of the human gene for rat cDNA clones.";
                                                                                                             PROSITE; PS00011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           between the Swiss Institute of Bioinf
the European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=94062692; PubMed=8243336; Rahman S., Oberdorf A., Montecino Stein G.S., Laipis P.J., Stein J.L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBO
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Eukaryota; Metazoa; (
Mammalia; Eutheria; I
                     MOD_RES
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
MEDLINE=94117426; PubMed=8288580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Endocrinology 133:3050-3053(1993).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=10090;
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MISCELLANEOUS: THERE ARE TWO GENES CODING FOR OSTEOCALCIN, 7
CODING SEQUENCE ONLY DIFFERS IN THE SIGNAL PEPTIDE REGION.
SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EW
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                                                                                                                                 GLU_CARBOXYLATION;
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Rodentia;
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62
PROBABLE.
OSTEOCALCIN.
GAMMA-CARBOXYGLUTAMIC
(BY SIMILARITY).
                                                                            PROBABLE
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(See http://www.isb-sib.ch/announce/
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protein utilizing
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VARIANT
CONFLICT
          EMBL;
EMBL;
                                                     between the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There use by non-profit institutions as long as modified and this statement is not removed. U entitles requires a license agreement (See htt
                                                                                                                                SEQUENCE FROM N.A.
STRAIN-129/SvJ; TI
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                                                                                                                                                                                                                                                                                                                            Desbois C., Hogue D.A., Karsenty G.;
"The mouse osteocalcin gene cluster contains three genes
separate spatial and temporal patterns of expression.";
J. Biol. Chem. 269:1183-1190(1994).
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15-JUN-2002 (Rel.
                                                                                                                                                                                                                                                  Endocrinology 133:3050-3053(1993).
                                                                                                                                                                                                                                                                     "Multiple copies
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                                              d and this statement is not remove s requires a license agreement (S an email to license@isb-sib.ch).
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1. 41, Last annotation up
ated protein precursor (
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                                                                                            entry is copyright. It is produced through a collaboration iss Institute of Bioinformatics and the EMBL outstation -
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Rodentia;
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Pred. No. 4.2e
5; Mismatches
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BY SIMILARITY.
LS -> IF (IN BGLA
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A -> P (IN REF. 1).
D4AA611134805D9B CRC64;
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GAMMA-CARBOXYGLUTAMIC
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RESULT 14
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Best Local
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21-JUL-1986
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DISULFID
SEQUENCE
         MOD_RES
MOD_RES
DISULFID
                                                                                                                                                                  Maciennan D.H., Siegel F.L. (eds.);
Calcium-binding proteins and calcium functio
Elsevier, New York (1977).

-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL
STRONGLY TO APATITE AND CALCIUM.
-I- PTM: CAMMA-CARBOXYGLUTAMIC ACID RESIDUES
DEPENDENT CARBOXYLATION. THESE RESIDUES
                                                                                                                                                                                                                                         Price P.A., Otsuka A.S., Poser J.W.; Price P.A., Otsuka A.S., Poser J.W.; Price P.A., Otsuka A.S., Poser J.W.; "Comparison of gamma-carboxyglutamic acid-containing proteins bovine and swordfish bone: primary structure and Ca++ binding. bovine and swordfish bone: primary structure and Ca++ binding. (In) Wasserman R.H., Corrading R.A., Carafoli E., Kretsinger I
                                                                                                                                                                                                                                                                                                                            Xiphias gladius (Swordfish).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;

Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Scombroixiphiidae; Xiphias.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS00011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRINTS; PR00002; SMART; SM00069; (
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                                                     PROSITE; PSOC
Calcium-bindi
                                                                             PRINTS;
                                                                                       Pfam; PF00594;
                                                                                                                         PIR; A03306; GEWF
                                                                                                                                                                                                                                                                                              SEQUENCE.
                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=8245;
                                                                                                                                                                                                                                                                                                                                                                                     protein) (BGP).
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                                                                                                   InterPro;
                                                                                                            InterPro; IPR002384;
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                                                                                                                                              BINDING OF CALCIUM. SIMILARITY: BELONGS
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29; Conserv
                                                                             PR00002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; IPRO02384; (; IPRO00294; )
                                                                 PS00011;
                                                                                                   IPR000294;
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(Rel. 01, Last sequence update)
(Rel. 41, Last annotation update)
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1; GLU_CARBOXYLATION;
          ; GLU_CARBOXYLATION; 1.

Gamma-carboxyglutamic acid; Vitami
13 GAMMA-CARBOXYGLUTAMIC
17 GAMMA-CARBOXYGLUTAMIC
20 GAMMA-CARBOXYGLUTAMIC
20 GAMMA-CARBOXYGLUTAMIC
25
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PROBABLE.
OSTEOCALCII-RELATED PROTEIN
GAMMA-CARBOXYGLUTAMIC ACID
(BY SIMILARITY).
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BY SIMILARITY
 8D93FE1787B09223 CRC64
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Best Local Similarity
Matches 17; Conserv
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Best Local Similarity
Matches 21; Conserv
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MEDLINE-96139691; PubMed-8567186;

Cancela M., Williamson M.K., Price P.A.;

Pantino-acid sequence of bone Gla protein from the African clawed toad and the fish Sparus aurata.";

Int. J. Pept. Protein Res. 46:419-423(1995).

-i- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.

-i- PTM: GAMMA-CARBOXYLATION. THESE RESIDUES ARE FORMED BY VITAMIN K DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE BINDING OF CALCIUM.

-I- SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                   DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002384; GLA_bone.
InterPro; IPR00294; VitK_dep_GLA.

Pfam; PF00594; 9la; 1.
PRINTS; PR00002; GLABONE.
PROSITE; PS00011; GLU_CARBOXYLATION; PARTIAL.
Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K; Bone.
MOD_RES
11
11
23
MOD_RES
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GAMMA-CARBOXYGLUTAMIC ACID.
MOD_RES
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GAMMA-CARBOXYGLUTAMIC ACID.
MOD_RES
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GAMMA-CARBOXYGLUTAMIC ACID.
BY SIMILARITY.

DISULFID
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23
BY SIMILARITY.
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Sparus aurata (Gilthead sea bream).

Sparus aurata (Gilthead sea bream).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoide; Sparus.

NCBI_TaxID=8175;
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7.9e-05;
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hypothetical prote	acetyltransferase	cell division prot	cell division prot	hypothetical prote	acetoin dehydrogen	acetoin utilizatio	probable fimbrial	C02C2.6 protein -	hypothetical prote	hypothetical prote	cystatin precursor	DEAH box protein a	hypothetical prote	myohemerythrin - p

GEHU RESULT

osteocalcin precursor [validated] - human N;Alternate names: BGP; bone Gla protein; bone Gla protein; gamma-carboxyglutamic acid-containing prote

ALIGNMENTS

C;Species: Homo sapiens (man)
C;Date: 31-Dec-1980 #sequence_revision 07-Apr-1994 #text_change 08-Dec-2000
C;Accession: S12652; C25471; A03301; S08694
R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.; Barr, P.J.
Nucleic Acids Res. 18, 1909, 1990
A;Title: The cDNA and derived amino acid sequences of human and bovine bone Gla prote A;Reference number: S12652; MUID:90245803; PMID:2336375

A; Molecule type: A; Accession: S12652 mRNA

A; Residues: 1-100 <KIE>

A;Cross-references: EMBL:X53698; NID:g36092; PIDN:CAA37736.1; PID:g36093 R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; Wozney,

R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; KIIZ, R.; Mauy, L.D., WILL, EMBO J. 5, 1885-1890, 1986

A;Title: Isolation of the human gene for bone gla protein utilizing mouse and A;Reference number: A91045; MUID:87004555;—PMID:3019668—
A;Accession: C25471
A;Accession: C25471 rat cDN

A;Molecule type: DNA
A;Residues: 1-32,35-100 <CEL>
A;Cross-references: EMBL:X04143; NID:g29449; PIDN:CAA27763.1; PID:g29450
A;Cross-references: EMBL:X04143; NID:g29449; PIDN:CAA27763.1; PID:g29450
A;Poser, J.W.; Esch, F.S.; Ling, N.C.; Price, P.A.
J. Biol. Chem. 255, 8685-8691, 1980
A;Title: Isolation and sequence of the vitamin K-dependent protein from human bone.
A;Reference number: A03301; MUID:81006914; PMID:6967872
A;Accession: A03301 a

A; Molecule type: protein
A; Residues: 52-100 <POS>
R; Cairns, J.R.; Williamson, M.K.; Price, P.A.
Anal. Biochem. 199, 93-97, 1991 acid in the sequencing

A; Title: Direct identification of gamma-carboxyglutamic A; Reference number: A44566; MUID:92222128; PMID:1807167 A; Contents: annotation binds strongly to apatite. the sequence presented in r

sequence % of the m

molecules

reference A9104

of vit

C;Comment: This protein, isolated from bone, bind C;Comment: Alternative splicing may produce the c;Comment: Glu-68 is gamma-carboxylated in 9-50%

A;Cross-references: GDB:118760; OMIM:112260 A; Gene: GDB: BGLAP

C; Genetics:

A; Map position: 1q25-1q31 A; Introns: 22/1; 35/1; 58/2

C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; extracellular

F;1-51/Domain: signal sequence #status predicted <SIG>F;52-100/Product: osteocalcin #status experimental <MAT>
F;52-100/Product: osteocalcin #status experimental <MAT>
F;60/Modified site: 4-NydToXyproline (Pro) #status absent
F;68/Modified site: gamma-carboxyglutamic acid (Glu) (partial) #status exper
F;72,75/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental (partial) #status experimental

F;74-80/Disulfide bonds: #status experimental

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N;Alternate names: BGP; bore Gla protein; gamma-carboxyglutamic C;Species: Bos primigenius taurus (cattle) C;Date: 24-Apr-1984 #sequence_revision 07-Apr-1994 #text_change: C;Accession: S12653; A03303; S08693 R;Kiefer, M.C.; Saphire, A.C.S.; Bauer, D.M.; Barr, P.J. Nucleic Acids Res. 18, 1909, 1990 A;Title: The cDNA and Acrim.
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C;Species: Dromaius r
C;Date: 01-Dec-1989 #
C;Accession: S02208
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A; Residues: 1-49 < HALV
C; Comment: This protein, is
C; Superfamily: osteocalcin
C; Keywords: bone; calcium l
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A; Residues: 1-48 <HUQ>
C; Superfamily: osteocalcin
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    crab-eating macaque

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      bovine
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Biochem. Soc. Trans. 19, :
A;Title: Primary aminoacia
A;Reference number: A61280
A;Accession: A61280
A;Molecule type: protein
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osteocalcin - rabbit
N;Alternate names: BGF; bone Gla protein; gamma-carboxyglutamic
C;Species: Oryctolagus cuniculus (domestic rabbit)
C;Date: 12-May-1994 #sequence_revision 02-Jun-1994 #text_change
C;Accession: A61280
R;Virdi, A.S.; Willis, A.C.; Hauschka, P.V.; Triffitt, J.T.
Biochem. Soc. Trans. 19, 373S, 1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: protein
A;Molecule type: protein
A;Residues: 1-49 <SHID
C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
C;Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline
F;9/Modified site: 4-hydroxyproline (Pro) #status experimental
F;17,21,24/Modified site: gamma-carboxyglutamic acid (Glu) #status exper
F;23-29/Disulfide bonds: #status experimental
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C;Species: Pelis silvestris catus (domestic cat)
C;Date: 25-Feb-1985 #sequence_revision 25-Feb-1985 #text_change 06-Sep-1996
C;Accession: A03304
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A;Title: Primary structure of the gamma-carboxyglutamic
A;Reference number: A03303; MUID:77036749; PMID:1088450
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id sequence of rabbit osteocalcin 80; MUID:92175242; PMID:1794506
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A; Molecule type: protein
A; Residues: 49-63, 'I', 65-77,'N',79-82,'EL', 85-90,'Q',91-97
C; Comment: The gamma-carboxyglutamic acid residues formed b
C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding; carboxyglutamic acid
F; 49-97/Product: osteocalcin #status experimental <MAT>
F; 65,69,72/Modified site: gamma-carboxyglutamic acid (Glu)
F; 71-77/Disulfide bonds: #status predicted
                                                                                                                                                                                           N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic C;Species: Rattus norvegicus (Norway rat) C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change C;Accession: A31859, 831419; A32324; A25167; A25471 R;Yoon, K; Rutledge, S.J.C.; Buenaga, R.F.; Rodan, G.A. Biochemistry 27, 8521-8526, 1988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R;Carr, S.A.; Hauschka, P.V.; Biemann, K.
J. Biol. Chem. 256, 9944-9950, 1981
A;Title: Gas chromatographic mass spectrometric sequence determination of osteocalcin, A;Reference number: A03305; MUID:82007831; PMID:6792200
A;Accession: A03305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           osteocalcin precursor - chicken
N;Alternate names: BGP; bone Gla protein; gamma-carboxyglutamic acid-containing
C;Species: Gallus gallus (chicken)
C;Date: 15-Oct-1982 #sequence_revision 15-Aug-1997 #text_change 22-Jun-1999
C;Accession: 150700; A03305
R;Neugebauer, B.M; Moore, M.A.; Broess, M.; Gerstenfeld, L.C.; Hauschka, P.V.
J, Bone Miner, Res. 10, 157-163, 1995
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C; Superfamily: osteocalcin
C; Keywords: bone; calcium binding; carboxyglutamic acid; hydroxyproline; pyroglutamic
E; 1/Modified site: pyrrolidone carboxylic acid (Gln) #status experimental
E; 9/Modified site: 4-hydroxyproline (Pro) #status experimental
E; 17, 21, 24/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
  A;Cross-references: GB:M23637; NID:g340986; PIDN:AAA41761.1; PID:g514962 R;Theofan, G.; Haberstroh, L.M.; Price, P.A. DNA 8, 213-221, 1989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Title: Characterization of structural sequences in the A;Reference number: I50700; MUID:95266465; PMID:7747623 A;Accession: I50700
                                                                            A; Molecule type: DNA
A; Residues: 1-99 < YOO>
                                                                                                                                              A; Title: Characterization of the rat osteocalcin gene: A; Reference number: A31856; MUID:89118266; PMID:3265336
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: mRNA
A; Residues: 1-97 <NEU>
                                                                                                                       A; Accession: A31856
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                                                                                                                                                                                                                                                                                                                                            osteocalcin precursor - rat
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Best Local S
Matches 15
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Best Local
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Pred. No.
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Pred. No
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1.7e-09;
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4e-08;
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Query Match
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A; Note: 63
C; Superfamily: F; 5-53/Domain:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Superfamily: osteocalcin
C;Keywords: bone; calcium binding; carboxyglutamic acid;
F;1-21/Domain: signal sequence #status predicted <SIG>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, EMBO J. 5, 1885-1990, 1986
A;Title: Isolation of the human gene for bone gla protein A;Reference number: A91045; MUID:87004555; PMID:3019668
A;Accession: A25471
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                                                                                                   A;Cross-references: EMBL:AF030027; NID:g2605950; A;Experimental source: strain NS80567
                                                                                                                                                A; Molecule type: DNA
A; Residues: 1-536 <TEL>
                                                                                                                                                                                                                                                                                                                                                                                                       C; Species: equine herpesvirus A; Variety: strain NS80567
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F;58/Modified site: 4-hydroxyproline (Pro) #status predicted
F;66,70,73/Modified site: gamma-carboxyglutamic acid (Glu) #
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                                                                                                                                                                                             A;Status: preliminary; translated
                                                                                                                                                                                                                                                                                                      R;Telford, E.A.; Watson, M.S.; Perry, J.; Cullinane, J. Gen. Virol. 79, 1197-1203, 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                 probable transcription activator -
C; Species: equine herpesvirus 4
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A; Residues: 1-99 <CEL>
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A; Residues: 1-99 < PAN>
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A; Residues: 1-99 <LIA>
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                                                                            Genetics:
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11; Conserv
                       varicella-zoster virus gene
  RING finger homology
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                       protein;
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.A.; Wozney,
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RESULT 12
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C;Keywords: bone; calcium binding; carboxyglutamic
F;13,17,20/Modified site: gamma-carboxyglutamic ac
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R;Price, P.A.; Otsuka, A.S.; Poser, J.W.
in Calcium-binding Proteins and Calcium Function, Wasserman, in Calcium-binding Proteins and Calcium Function, Wasserman, A;Title: Comparison of gamma-carboxyglutamic acid-containing A;Reference number: A03306
A;Accession: A03306
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C;Date: 30-Apr-1979 #sequence_revision 27-Nov-1985 #text_change
                                                                                                               QΥ
                                                                                                                                                                                                                             A; Gene: Zn-alpha 2-gp
A; Introns: 7/1; 77/2; 83/1
C; Superfamily: class I histocompatibility antigen; immunoglobulin homology
C; Keywords: glycoprotein; immune response; immunoglobulin; liver
                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: mRNA
A; Residues: 1-164 <URI>
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zn-alpha 2-glycoprotein - rat (fragment)
C;Species: Rattus norvegicus (Norway rat)
C;Date: 10-May-1996 #sequence_revision 19-Jul-1996 #text_change 11-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PC4154
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                                                                                                                                                                                                              F;79/Binding site: carbohydrate (Asn) (covalent)
                                                                                                                                                                                                                                                                                                C; Genetics:
                                                                                                                                                                                                                                                                                                                                C; Comment:
                                                                                                                                                                                                                                                                                                                                           A; Experimental source:
                                                                                                                                                                                                                                                                                                                                                            A; Cross-references: EMBL: X86178
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: protein
A; Residues: 1-47 < PRI>
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   hypothetical
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Best Local S
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Best Local
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                                                                                                                   11 PYPDPLE 17
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                                                                                   PYPDPLE 54
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   AGR_C_880 [imported] -
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I in the transport of nonpolymorphic substances or intercellular
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                                                                                                                                                              Score 7; 1
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   Agrobacterium
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proteins
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A;Status: pr
A;Molecule t
A;Residues:
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G83544
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C;Superfamily:
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Best Local
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C;Accession: G83544
R;Stover, C.K.; Pham, X.O.; Erwin, A.L.; Mizoguchi, S.D.; adman, S.; Yuan, Y.; Brody, L.L.; Coulter, S.N.; Folger, K.; Lory, S.; Olson, M.V.
Nature 406, 959-964, 2000
A;Title: Complete genome sequence of Pseudomonas aeruginos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C;Species: Halobacterium sp. NRC-1
C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 16-Feb-2001
C;Accession: B84226
R;Mg, W.V.; Kennedy, S.P.; Mahairas, G.G.; Berquist, B.; Pan, M.; Shukla, H.D.;
Leithauser, B.; Keller, K.; Cruz, R.; Danson, M.J.; Hough, D.W.; Maddocks, D.G.
Jung, K.H.; Alam, M.; Freitas, T.
Proc. Natl. Acad. Sci. U.S.A. 97, 12176-12181, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Title: Genome Sequence of the Plant Pathogen A;Reference number: A97359; PMID:11743194 A;Accession: E97419 A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Agrobacterium tumefaciens
C;Date: 30-Sep-2001 #sequence_revision
C;Accession: E97419
                                                                                                                                                   C;Species: Pseudomonas aeruyınusa
C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Authors: Hou, S.; Daniels, C.J.; Dennis, P.P.; Omer, A A;Title: Genome sequence of Halobacterium species NRC-1. A;Reference number: A84160; MUID:20504483; PMID:11016950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Science 294, 2323-2328, 2001
               A; Reference number: A82950;
A; Accession: G83544
                                                                                                                                                                                                              probable transcription regulator PA0815 [imported] -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Cross-references: GB: AEOO4437; NID: g10580268;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-286 <STO>
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A;Gene: AGR_C_880
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A; Residues: 1-275 < KUR>
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nes 7; Conserv
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                                                                                                                                                                                                                                                                                                                                                31 ELADHIG 37
preliminary
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7; Conserv
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Conservative (
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G.; Gattung, S.; Miller, N.; Blanchard, N.; Allinger, M.; Doughty, D.; Scott, C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14.3%; 5-
100.0%; Pr
                                     sequence of Pseudomonas aeruginosa 50; MUID:20437337; PMID:10984043
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100.0%; Pred. No.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIDN: AAG19174.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Omer, A.D.;
                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                           Length 286
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                                                                                                                 K.R.;
                                                                                                                                 Warrener,
                                                       PA01,
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                                                                                                                 Kas,
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                                                                                                               Hickey,
Larbig,
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Markelz,
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R;Willy, P.J.; Umesono, K.; Ong, E.S.; Evans, R.M.; Heyman, R.A.; Mangelsdorf, D.J. Genes Dev. 9, 1033-1045, 1995
A;Title: LXR, a nuclear receptor that defines a distinct retinoid response pathway. A;Reference number: I38975; MUID:95262897; PMID:7744246
A;Accession: I38975
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A; Gene:
                                                                                                                                                                        A;Cross references: EMBL:X17403; NID:g59591; PIDN:CAA35358.1; PID:g1780862
A;Note: this sequence was submitted to the EMBL Data Library, December 198:
C;Superfamily: human cytomegalovirus 65K early nonstructural protein
C;Keywords: leucine zipper; nonstructural protein
                                                                                                                                                                                                                                                                                                         M.; Barrell, B.G.
Curr. Top. Microbiol. Immunol. 154, 125-169, 1990
A;Title: Analysis of the protein-coding content of the sequence A;Reference number: S09749; MUID:90269039; PMID:2161319
A;Accession: S09848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nuclear orphan receptor LXR-alpha - human
C;Species: Homo sapiens (man)
C;Date: 16-Feb-1996 #sequence_revision 16-Feb-1996 #text_change 20-Sep-1999
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                                                                                                                                                                                                                                                                                                                                                                                                                  A;Note: host Homo sapiens (man)
C;Date: 31-Dec-1992 #sequence_revision 31-Dec-1992 #text_change 16-Jul-1999
C;Accession: S09848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65K early nonstructural protein - human cytomegalovirus N;Alternate names: UL84 protein
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A; Residues: 1-447 < RES>
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                                                                                                                                              F; 114-135/Region:
F; 324-372/Region:
                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-586 < CHE>
                                                                                                                                                                                                                                                                                          A; Status: nucleic acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                    R;Chee, M.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C; Species: human cytomegalovirus, human herpesvirus
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Matches 7
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;Keywords: zinc finger
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Matches
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                                                                        Conservative
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leucine zipper motif
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100.0%; Pr
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                                                                    b; Score 7; DB 1
b; Pred. No. 9.7
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55 23
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                                                                                                                                                                                                                December 1989
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T31345
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             R; Waterston, R.
submitted to the EMBL Data Library, Ap
A; Description: The C. briggsae genome
A; Reference number: Z21010
A; Accession: T31345
                                                                                                      hypothetical protein G01D9.5 - Caenorhabditis briggsae C;Species: Caenorhabditis briggsae C;Date: 29-Oct-1999 #te:C;Date: 29-Oct-1999 #te:C;Accession: T31345
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A; Residues: 1-660 <KUR>
A; Cross-references: GB:
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A; Residues: 1-587 <HEY>
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J. Virol. 66, 1
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preliminary; translated from GB/EMBL/DDBJ
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A.Experimental source: strain PCC 7120 C:Genetics:
                                                                                                                                                                                                                        Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasona Res. 8, 205-213, 2001
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing A;Reference number: AB1807; MUID:21595285; PMID:11759840
A;Accession: AH2348
                                                                                                                                                                                                                                                                                                   A;Note: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. C;Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change C;Accession: AH2348
R;Kaneko, T; Nakamura, Y; Wolk, C.P.; Kuritz, T.; Sasamoto, S. Nakazaki, N.; Shimpo, S; Sugimoto, M.; Takazawa, M.; Yamada, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: GB:M81432; NID:g330541; PIDN:AAA45947.1; PID:g330542 C;Superfamily: human cytomegalovirus 65K early nonstructural protein C;Keywords: leucine zipper; nonstructural protein C;Keywords: leucine zipper motif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             J. Virol. 66, 1098-1108, 1992
A;Title: Characterization of human cytomegalovirus UL84
A;Reference number: A41808; MUID:92114132; PMID:1309892
A;Accession: A41808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         F;325-373/Region: leucine zipper motif
                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical protein all4343 [imported] - Nostoc sp. C; Species: Nostoc sp.
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14.3%; L-
100.0%; Pr
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100.0%; Pred. No.
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M.; Yasuda, M.; Tabata
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30-Jun-2002
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sequencing

project

29-Oct-1999 #text_change

01-Dec-2000

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A;Molecule type: DNA
A;Residues: 1-70 <TOM>
A;Residues: 1-70 <TOM>
C;Superfamily: Escherichia coli ribosomal protein S21
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Variety: strain J99
C; Date: 12-Fab-1001
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C; Superfamily:
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A; Residues: 1-4767 <
                                                                                                          Nature 388, 539-547, 1997
A;Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.;
A;Title: The complete genome sequence of the gastric pathogen Hel
A;Reference number: A64520; MUID:97394467; PMID:9252185
A;Accession: B64590
                                                                                                                                                                                       R;Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, Peterson, S.; Loftus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; Mcson, J.D.; Kelley, J.M.; Cotton, M.D.; Weldman, J.M.; Fujii, C.; Bowman, C.; Watthe Nature 388, 539-547, 1997
                                                                                                                                                                                                                                                                                                                                                RESULT
B64590
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A; Residues: 1-70 < ARN>
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C;Superfamily:
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;Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 13-Aug-1999
;Accession: B64590
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Best I
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                                     PIDN: AAD07628.1;
                                                                                                                                                                    Smith, H.O.; Fraser,
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                                   PID:g231367
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K; Desbols, C.; Hogue, D.A.; Karsenty, G.

J. Biol. Chem. 269, 1183-1190, 1994

A; Title: The mouse osteocalcin gene cluster contains three
A; Reference number: A49871; MUID:94117426; PMID:8288580
A; Accession: A49871
                                                             A; Introns: 22, C; Superfamily:
                                                                                                                                                                                                             R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M.; Lian, Endocrinology 133, 3050-3053, 1993
A;Title: Multiple copies of the bone-specific osteocalcin gene in A;Reference number: I53275; MUID:94062692; PMID:8243336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                C;Superfamily: osteocalcin
F;1-49/Domain: signal sequence #status predicted
F;50-95/Product: osteocalcin #status predicted <
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-3,'IF',6-10,'T',12-95 <RE2>
A;Cross-references: GB:L24431; NID:g45545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary; translated from GB/EMBL/DDBJA;Molecule type: DNAA;Residues: 1-95 <RES>
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A; Residues: 1-95 <CEL>
R; Desbois, C.; Hogue,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Celeste, A.J.; Rosen, V.; Buecker, J.L.; Kriz, R.; Wang, E.A.; woz
EMBO J. 5, 1885-1890, 1986
A;Title: Isolation of the human gene for bone gla protein utilizing
A;Reference number: A91045; MUID:87004555; PMID:3019668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Species: Mus musculus (house mouse)
C;Date: 05-Oct-1988 #sequence_revision 05-Oct-1988 #text_change
C;Accession: B25471; A49871; I61189
                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-95 < RES>
                                                                                                                                                                                            A; Reference number: A; Accession: I53275
                                                                                                                                                                                                                                                                                     C; Accession: I53275
                                                                                                                                                                                                                                                                                                  C;Species: Mus sp. (mouse)
C;Date: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change
                                                                                                                                                                                                                                                                                                                                        osteocalcin
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                                                                                                                         A;Cross-references: GB:S67455;
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6; Conser
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llarity 100.0%;
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100.0%; Pred. No. 17
:ive 0; Mismatches
                                                                                                                         NID:g456854; PIDN:AAB29145.1;
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                   Score; Pred.
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            DB
23;
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R;Desbois, C.; Hogue, D.A.; Karsenty, G.
J. Biol. Chem. 269, 1183-1190, 1994
A;Title: The mouse osteocalcin gene cluster contains three A;Reference number: A49871; MUID:94117426; PMID:8288580
A;Accession: I61188
L71-1 protein - fruit fly (Drosophila melanogaster)
C;Speckes: Drosophila melanogaster
C;Date: 19-Jul-1996 #sequence_revision 26-Jul-1996 #text_change
C;Accession: S62333; S62342
                                                                                                                                                                                                                                                                                                                                                                       A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-95 <RES>
A;Cross-references: GB:L24430; NID:g455454; PIDN:AAA39855.1;
A;Accession: I49073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             osteocalcin-related protein - mouse
C;Species: Mus musculus (house mouse)
C;Date: 02-Jul-1996 #sequence_revision 02-Jul-1996 #text_change 20-Aug-1999
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A;Title: Multiple copies of the bone-specific osteocalcin gene in mouse and rat. A;Reference number: I53275; MUID:94062692; PMID:8243336
A;Accession: I67413
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A;Introns: 22/1;
C;Superfamily: os
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C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 20-Aug-1999
C;Accession: I67413
R;Rahman, S.; Oberdorf, A.; Montecino, M.; Tanhauser, S.M.; Lian, J.B.; Ste
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A; Residues: 1-95 < RE
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A; Residues: 1-95 < RES>
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100.0%; Pred. No.
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             A; Experimental source: strain
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A;Status; preliminary
A;Molecule type: DNA
A;Residues: 1-103 <STO>
A;Cross-references: GB:BA000008; NID:g8978964; PIDN:BAA98799.1;
A;Experimental source: strain J138
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               J. Mol. Biol. 255, 387-400, 1996
A;Title: Molecular characterization of the 71E late puff A;Reference number: S62333; MUID:96152797; PMID:8568884
A;Molecular through the control of the control of the control of the puff A;Reference number: S62333; MUID:96152797; PMID:8568884
A;Molecular through the control of the contro
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic Acids Res. 28, 2311-2314, 2000
A;Title: Comparison of whole genome sequences of chlamydia A;Reference number: A86491; MUID:20330349; PMID:10871362 A;Accession: E86564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YidD family [imported] - Chlamydophila pneumoniae (strain J138) C;Species: Chlamydophila pneumoniae, Chlamydia pneumoniae C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change
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E86564
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R;Shirai, M.; Hiraka
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A; Residues: 1-100 <WRW>
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A; Residues: 1-100 < WRI>
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A;Introns: 12/1; 79/1
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6; Conservative
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25
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yidd family - Chlamydophila pneumoniae (strain CWL029)
C;Species: Chlamydophila pneumoniae, Chlamydia pneumoniae
C;Date: 23-Apr-1999 #sequence_revision 23-Apr-1999 #text_change 05-May-2000
                                                                                                                                    A; Title: Comparative genomes of Clamydia particle number: A72000; MUID:99206606; A; Accession: H72060
                                                A; Molecule type: DNA
A; Residues: 1-103 <ARN>
                                                                                                                                                                                                                        R;Kalman, S.; Mitchell, W.; Marathe, Nature Genet. 21, 385-389, 1999
                                                                                                                                                                                                                                                                              C; Accession: H72060
                     A;Cross-references: GB:AE001643; GB:AE001363; NID:g4376876; PIDN:AAD18731.1; PID:g437
                                                                                                      A; Status: preliminary
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CWL029
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6; PMID:10192388
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Fan,

J.;

Olinger,

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Grimwood

trachomatis

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A;Reference number: S38261; MUID:94
A;Accession: S38261
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-119 <DEM>
C;Superfamily: hemerythrin
C;Keywords: iron; oxygen carrier
F;25,54,58,74,78,107,112/Binding si
hypothetical protein F26E4.9 - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #tc C;Accession: T21416
                                                                                                                                                                                                                                                                                                                                                                                                                                     myohemerythrin - polychaete (Nereis diversicolor)
()Species: Nereis diversicolor (sandworm)
()Species: Nereis diversicolor (sandworm)
()C;Date: 19-May-1994 #sequence_revision 27-Feb-1997 #text_change 22-C;Accession: S38261
()R;Demyynck, S; Li, K.W; van der Schors, R.; Dhainaut-Courtois, N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               conserved hypothetical protein CP0156 [imported] - Chlamydophila pneumoniae (strain AR C;Species: Chlamydophila pneumoniae, Chlamydia pneumoniae
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 11-May-2000
C;Accession: E81606
R;Read, T.D.; Brunham, R.C.; Shen, C.; Gill, S.R.; Heidelberg, J.F.; White, O.; Hickey, C.; Dodson, R.; Gwinn, M.; Nelson, W.; DeBoy, R.; Kolonay, J.; McClarty, G.; Salzber Nucleic Acids Res. 28, 1397-1406, 2000
A;Title: Genome sequences of Chlamydia trachomatis MoPn and Chlamydia pneumoniae AR39.
A;Reference number: A81500; MUID:20150255; PMID:10684935
A;Accession: E81606
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Eur. J. Biochem. 217, 151-156, 1993
A;Title: Amino acid sequence of the small cadmium-binding protein (MP
A;Reference number: S38261; MUID:94039032; PMID:8223553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:AE002177; GB:AE002161; NID:g7189090; PIDN:AAF38037.1; PID:g718909A;Experimental source: strain AR39, HL cells C;Genetics:
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A; Molecule type: DNA
A; Residues: 1-106 < REA>
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                 #sequence_revision 15-Oct-1999 #text_change 21-Jan-2000
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s; Pred. No. 28;
0; Mismatches
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cystatin precursor - chicken
N;Alternate names: cystatin 1; cysteine proteinase inhibitor; egg-white cysta
C;Species: Gallus gallus (chicken)
C;Date: 03-Aug-1984 #sequence_revision 12-Apr-1996 #text_change 29-Oct-1999
C;Accession: A34456; A01274; S01461; S48159; S04008; JN0789
R;Colella, R.; Sakaguchi, Y.; Nagase, H.; Bird, J.W.C.
J. Biol. Chem. 264, 17164-17169, 1989
A;Title: Chicken egg white cystatin. Molecular cloning, nucleotide sequence,
A;Reference number: A34456; MUID:90008873; PMID:2793849
A;Cross-references: GB:J05077; NID:g211714; PIDN:AAA48744.1; PID:g211715 R;Schwabe, C:; Anastasi, A.; Crow, H.; McDonald, J.K.; Barrett, A.J. Biochem J. 217, 813-817, 1948. Biochem J. 217, 813-817, 1948. A;Title: Cystatin. Amino acid sequence and possible secondary structure. A;Reference number: A01274; MUID:84178305; PMID:6712597 A;Accession: A01274
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A; Introns: 62/3; 96/1
C; Superfamily: mammal
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C; Superfamily:
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C;Species: Chlorella virus PBCV-1
C;Date: 15-Oct-1999 #sequence_revision 15-Oct-1999 #text_change 21-Jan-2000
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A;Molecule type: DNA
A;Residues: 1-132 <WIL>
A;Cross-references: EMBL:Z81070; PIDN:CAB03002.1; GSPDB:GN00019; CESP:F26E4.9
                                                                                                                            A; Molecule type: mRNA
A; Residues: 1-139 <COL>
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A; Residues: 1-136 <GRA>
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A; Accession: T18052
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submitted to the EMBL Data Library, October 1996
                                                                                                                                                                   A; Accession: A34456
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nces: EMBL:U42580; NID:g4028896; PIDN:AAC96997.1 source: specific host Chlorella strain NC64A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chlorella
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Library,
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Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 32 
; Mismatches
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32;
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Amino-acid sequence of cystat

Borchart,

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A; Accession: unv...
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A; Molecule type: DNA
A; Molecule type: DNA
A; Residues: 1-139 <CCO2>
A; Cross-references: GB: M95725
A; Cross-refer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Introns: 76/3; 114/3
C; Superfamily: cystatin; cystatin homology
C; Superfamily: cystatin; cystatin homology
C; Keywords: cysteine proteinase inhibitor; egg white; phosphoprote:
F; 1-23/Domain: signal sequence status predicted <SIG>
F; 24-139/Product: cystatin, long form #status experimental <CYLF>
F; 30-139/Product: cystatin homology <CYS
F; 32-139/Product: cystatin homology <CYS
F; 76-80/Region: inhibitory #status predicted
F; 94-104,118-138/Disulfide bonds: #status experimental
F; 103/Binding site: phosphate (Ser) (covalent) (partial) #status experimental
                                                                                                                                       hypothetical protein 143 - fava bean mitochondrion C; Species: mitochondrion Vicia faba (fava bean) C; Date: 16-Jul-1999 #sequence_revision 16-Jul-1999
                                                                                                                                                                                                                                                                                             RESULT
T12144
          C; Accession: T12144
R; Scheepers, D.G.;
Plant Sci. 129, 203
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A; Residues: 97-114 <LAB>
A; Residues: 97-114 <LAB>
R; Colella, R; Bird, J.W.C.

Gene 130, 175-181, 1993
A; Title: Isolation and characterization of the chicken cystatin-encoding gene: Mapping A; Reference number: JN0789; MUID:93366172; PMID:8359684
A; A; A; Ccession: JN0789
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A;Title: The cysteine proteinase inhibitor chicken cystatin A;Reference number: S04008; MUID:89252033; PMID:2721673
A;Accession: S04008
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A:Title: Production, inhibitory activity, 1 A;Reference number: S48159; MUID:95010016; A;Accession: S48159
A;Status: preliminary
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R;Turk, V.; Brzin, J.; Longer, M.; Ritonja, A.; Eropkin, M.; I
HOppe-Seyler's Z. Physiol. Chem. 364, 1487-1496, 1983
A;Title: Protein inhibitors of cysteine proteinases. III. Amii
A;Reference number: S01461; MUID:84110059; PMID:6662498
A;Accession: S01461
A;Acc
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Best Local
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D.G.; Luo, I
29, 203-212,
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          H.; Boutry,
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100.0%; Pr
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                                                                                                                                                 20-Sep-1999
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RESULT

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C02C2.6 protein - Caenorhabditis elegans
C;Species: Caenorhabditis elegans
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Sep-1997
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S03744
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C; Superfamily: fava bean mitochondrion
C; Keywords: mitochondrion
В
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                                                                                                                                                                                                         submitted to the EMBL Data A; Description: Sequence of A; Reference number: S44737
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Mol. Microbiol. 1, 45-52, 1987
A;Title: Cloning and nucleotide sequence of A;Reference number: S03743; MUID:88260883; P.
A;Accession: S03744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Title: Variant mitochondrial transcripts of a broad bean line are associated with A;Reference number: 217435
A;Recession: T12144
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-143 <SCH>
                                                                                                            A; Introns: 79/3;
                                                                                                                          C; Genetics
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical protein - Calothrix sp. C;Species: Calothrix sp. C;Date: 28-Feb-1990 #sequence_revision
                                                                                                                                    A; Cross-references: EMBL:L23649;
                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-171 <WIL>
                                                                                                                                                                             A; Status: preliminary
                                                                                                                                                                                            A; Reference number: A; Accession: S44737
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A;Authors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F. Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois, A; Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maueel, M.; Ogawa, K.; Ogiwara, A.; Oudega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle Rieger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon, A; Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Serot akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama, T.; Winters, P.; Wipat, A.; Yamamoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshikawa, H.F.; Zumstein, E.; Yoshikawa, H.; Danchin, A.
A;Title: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis. A; Reference number: A69580; MUID:98044033; PMID:9384377
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R;KUNSt, F; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Berter
C.; Bron, S.; Brouillet, S.; Buschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Chc
A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E.
Nature 390, 249-256, 1997
                                                                                                                                                                  A;Cross-references: GB:Z99119; GB:AL009126; NID:g2635411; PIDN:CAB14947.1; PID:e1185842
A;Experimental source: strain 168
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A; Residues: 1-210 <KUN>
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A; Residues: 1-210 <GRU>
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A; Accession: S39645
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C;Species: Bacillus subtilis
C;Date: 08-Jun-1994 #sequence_revision 10-Nov-1995 #text_change 21-Jul-2000
C;Accession: S39645; C69582
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A; Residues: 1-185 < PAR>
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                                      C; Accession: D81201
R; Tettelin, H.; Saur
                                                                                     C;Species: Neisseria meningitidis
C;Date: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 19-Jan-2001
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DNA Res. 8, 205-213, 2001
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium A;Reference number: AB1807; MUID:21595285; PMID:11759840
A;Accession: AB2392
                                                                                                                                                                                                                                                                                                                                                                                                       hypothetical protein all4690 [imported] - Nostoc sp. (strain PCC 7120) C;Species: Nostoc sp. (crain PCC 7120) A;Note: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120 C;Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change 30-Jun-2002 C;Accession: AB2392
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                                                                                                                                                                                         A;Cross-references: GB
A;Experimental source:
                                                                                                                                                                                                                                                                                                                                                      R;Kaneko, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, DNA Res. 8, 205-213, 2001
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A; Residues: 1-210 <STO>
A; Cross-references: GB:AP001518; GB:BA000004; NID:g10175792; PIDN:BAB06954.1; GSPDB:G
A; Experimental source: strain C-125
                                                                                                                                                        A; Gene:
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A; Residues: 1-214 < KUR>
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                                     4 QWLGAP 9
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Similarity 100.0%;
6; Conservative (
                                                                            Similarity 6; Conser
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                                                                              Conservative
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                                                                                                                                                                                             GB:BA000019; PIDN:BAB76389.1; ce: strain PCC 7120
                                                                          12.2%; Score 6; DB
100.0%; Pred. No. 48
Live 0; Mismatches
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%; Pred. No. 47;
0; Mismatches
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48;
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M.; Tabata
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Saunders, laft, D.H.;

N.J.; Heidelberg, J.; Salzberg, S.L.; White,

Jeffries, A.C.; Nelson, O.: Fleischmann, R.D.;

K.E.; Eisen, Dougherty, B

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C;Species: Neisseria meningitidis
C;Date: 05-May-2000 #sequence_revision 05-May-2000 #text_change 02-Feb-2001
C;Accession: G81776
R;Parkhill, J; Achtman, M.; James, K.D.; Bentley, S.D.; Churcher, C.; Klee
R;Holroyd, S.; Jagels, K.; Leather, S.; Moule, S.; Mungall, K.; Quail, M.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ri, H.; Qin, H.; Vamathevan, J.; Gill, J.; Scarlato, V.; Masignani, V.; Pizza, M. Science 287, 1809-1815, 2000
A;Authors: Grandi, G.; Sun, L.; Smith, H.O.; Fraser, C.M.; Moxon, E.R.; Rappuoli, R.; A;Title: Complete genome sequence of Neisseria meningitidis serogroup B strain MC58. A;Reference number: A81000; MUID:20175755; PMID:10710307
A;Accession: D81201
A;Status: preliminary
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-252 KKUR>
A;Cross-references: GB:AE008917; PIDN:AAL51307.1;
A;Experimental source: strain 16M
                                                                                                       C;Accession: AH3267

R;DelVecchio, V.G.; Kapatral, V.; Redkar, R.J.; Patra, G.; Mujer, Razur, M.; Goltsman, E.; Selkov, E.; Elzer, P.H.; Hagius, S.; C Proc. Natl. Acad. Sci. U.S.A. 99, 443-448, 2002

A;Title: The genome sequence of the facultative intracellular path A;Reference number: AD3252; PMID:11756688

A;Accession: AH3267
                                                                                                                                                                                                                                                 acetyltransferase (EC 2.3.1.-) [imported] - Brucella melitensis (strain 16M) C;Species: Brucella melitensis C;Date: 01-Feb-2002 #sequence_revision 01-Feb-2002 #text_change 01-Feb-2002
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Best Local Similarity
"~+~hes 6; Conserv
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A;Residues: 1-235 <TET>
A;Residues: 1-235 <TET>
A;Cross-references: GB:AE002398; GB:AE002098; NID:g7225640; PIDN:AAF40863.1; PID:g722564
A;Experimental source: serogroup B, strain MC58
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C; Superfamily:
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A;Experimental source: serogroup
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Title: Complete DNA sequence of a serogroup A strain of A;Reference number: A81775; MUID:20222556; PMID:10761919
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C; Superfamily: cell division protein ftsQ
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100.0%; Pr
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100.0%;
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A, strain Z2491
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                       PID:g17982002;
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                                                                                                                                                                                    s.; O'Callaghan, D.; Letes
                         GSPDB:GN00190
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M.A.;
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Rajandream,
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      Search completed: December
Job time : 21 secs
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probable transcription regulator - Streptomyces coelicolor
C;Species: Streptomyces coelicolor
C;Date: 05-Nov-1999 #sequence_revision 05-Nov-1999 #text_c
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C; Keywords: acyltransferase
                                                                                                                                                                                                             R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Ko J.; Ermolaeva, M.; White, O.; Salzberg, S.L.; Shapiro, L.; Venter, J.C.; Fraser, C Proc. Natl. Acad. Sci. U.S.A. 98, 4136-4141, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
A;Accession: A87646
                                                                                                                                                                                                                                                                                                                        C;Species: Caulobacter crescentus
C;Date: 20-Apr-2001 #sequence_revision
C;Accession: A87646
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submitted to the EMBL Data 1
A;Reference number: Z21570
A;Accession: T35168
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A; Gene: SCOEDB: SC5A7.19c
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                                                                                                                         A;Gene:
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A; Residues: 1-289
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                                                                                                                                                   A; Cross-references:
                                                                                                                                                                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                        hypothetical protein CC3203 [imported] - Caulobacter crescentus
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                                                                                                                                                    GB:AE005673; NID:g13424881; PIDN:AAK25165.1; GSPDB:GN00148
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Pred. No.
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1998
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63;
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                      p02819 macaca fasc
p4014 xenopus lae
p02820 bos taurus
p02821 felis silve
p39056 oryctolagus
p81455 canis famil
p02822 gallus gall
p02822 gallus gall
p02823 xiphias gla
q13133 homo sapien
p16727 human cytom
q29839 human cytom
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q2980 brachydanio
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q227w2 chlamydia p
p811061 coturnix co
p80255 nereis dive
p101038 gallus gall
p34274 caenorhabdi
p39065 bacillus su
q27855 methanobact
p54550 bacillus su
q27855 methanobact
p54550 bacillus su
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equus cabal
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ALIGNMEN ARD; PRT; 10 Created) Last sequence upd Last, annotation upscr (Gamma-carboxyglu BGP) Chordata; Craniata; Primates; Catarrhin Primates; Catarrhin A.C.S., Bauer D.M. d amino acid sequen 8:1909-1909(1990) B:1909-1909(1990) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:1909-1909(190) B:19	PURK_CORAM CLEX_ANASP HMCS_ARATH SYE_YERPE ICPO_HSVEB NOEB_RHIME ECHP_CAVPO DPP4_BOVIN TRS1_HCOVIN TRS1_HCOVIN TRS1_HCOVIN PLSB_ECOS7 PLSB_ECOLI PLSB_SALTI
ALIGNMENT uence upda otation up arboxyglut Craniata; Catarrhini Catarrhini 75; auer D.M., id sequenc 9(1990). 9(1990). 12 R., Wan or bone 91 72; 72; 72; 72; 73 Price vitamin K e first 91 980 The TO LCIUM. ACID RESI ACID RESI ACID RESI ACID RESI 1980). 1987 TO LCIUM. 1981 TO LCIUM.	PURK_CORAM CLEX_ANASE HMCS_ARATH SYE_YERPE ICPO_HSVEB NOEPE_RIIME ECHP_CAVEO DEP4_BOVIN TRS1_HCOS7 PLSB_ECO57 PLSB_ECOL1 PLSB_SALT11 PLSB_SALT11
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CHAIN
                                                                      SEQUENCE
                                                                                                                                                                                 Calcium-binding; Gamma-carboxyglutamic acid; Vitamin
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"Isolation and characterization of equ
Ann. Med. Vet. 0:0-0(2002).
-!- FUNCTION: Constitutes 1-2% of the
                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE=Bone;
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Mammalia; Eutheria;
NCBI_TaxID=9796;
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Calcium-binding; Gamma-carboxyglutamic acid;
SIGNAL 1 23 PROBABLE.
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PTM: Gamma-carboxyglutamic acid residues dependent carboxylation. These residues
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binding of calcium.
SIMILARITY: BELONGS TO THE
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w; HGNC:1043; BGLAP
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; SM00069; GLA; 1.
TE; PS00011; GLU_C
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     Conservative
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(Rel. 41, Last sequence update)
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(Gamma-carboxyglutamic acid-containing
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 Score 39; DB Pred. No. 1.2 0; Mismatches
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
BY SIMILARITY.
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                                                                   A5B826014D12857F CRC64;
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idae; Equus.
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InterPro; IPRO0294; V1tK_dep_GLA.

InterPro; IPRO00294; V1tK_dep_GLA.

Pfam; pro0594; gla; 1.

Pro0594; gla; 1.

SMART; SM00069; GLABONE.

SMART; SM00069; GLABONE.

SMART; SM00069; GLA; 1.

R PROSITE; PS00011; GLU_CARBOXYLATION; 1.

R PROSITE; PS00011; GLU_CARBOXYLATION; 1.

GLCium-binding; Gamma-carboxyglutamic acid; Vitamin K; Bon GLCium-binding; Gamma-Carboxyglutamic acid.

MOD_RES 16 16 GAMMA-CARBOXYGLUTAMIC ACID.

MOD_RES 20 20 GAMMA-CARBOXYGLUTAMIC ACID.

MOD_RES 31 33 GAMMA-CARBOXYGLUTAMIC ACID.

PMOD_RES 23 23 GAMMA-CARBOXYGLUTAMIC ACID.

PMOD_RES 24 88 BY SIMILARITY.

PMOD_RES 25 28 BY SIMILARITY.
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P02819;
21-JUL-1986
21-JUL-1986
15-JUN-2002
Osteocalcin
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01-APR-1990
01-APR-1990
15-JUN-2002
Osteocalcin
Macaca fascicularis (Crab eati
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
Cercopithecinae; Macaca.
NCBI_TaxID=9541;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gla-containing proteins.";
Biochem. Int. 15:271-277(1987).
-i- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL
STRONGLY TO APATITE AND CALCIUM.
-i- FTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES
DEPENDENT CARBOXYLATION. THESE RESIDUES
BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=88134266; PubMed=3501719;
Hug N.L., Tseng A., Chapman G.E.;
"The amino acid sequence of Emu o
                                                                                                                        BGLAP.
                                                                                                                                          protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SIMILARITY: BELONGS
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Eukaryota; Metazoa; Chordata; Craniata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein) (BGP).
BGLAP.
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                                                                                                                                                        (Rel. 01, Created)
(Rel. 01, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Rel. 14, Created)
(Rel. 14, Last sequence up
(Rel. 41, Last annotation
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                                                                                                                                                                                                                                                                                           STANDARD;
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Pred.
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Craniata; Ve
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on update)
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                                                                     e) (Cynomolgus monkey).
Vertebrata; Euteleostomi;
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s 0;
                                              Cercopithecidae;
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                                                                                         InterPro; IPR002384; GI
InterPro; IPR000294; V:
Pfam; PF00594; gla; 1.
PRINTS; PR00002; GLABOI
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01-OCT-1996
15-JUN-2002
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SMART; SN
PROSITE;
                                                                                                                                                                                                                                                                                                                    MEDLINE-96139691; PubMed-8567186;
Cancela M., Williamson M.K., Price P.A.;
Cancela M., Williamson M.K., Price P.A.;
"Amino-acid sequence of bone Gla protein from the African clawed toad xenopus laevis and the fish Sparus aurata.";
Int. J. Pept. Protein Res. 46:419-423(1995).
-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.
-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN K
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Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [1]
SEQUENCE.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein) (BGP).
Xenopus laevis (African clawed fróg).
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InterPro; IPR000294;
Pfam; PF00594; gla; 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
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SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN FAMILY.
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                                                                                                                                                                                                                                            SIMILARITY:
                                                                                                                                                                                                              FAMILY.
                                                                                                                                                                                                                                                                                            DEPENDENT CARBOXYLATION. THESE RESIDUES
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                             SM00069; GLA; 1.
E; PS00011; GLU_CARBOXYLATION;
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E; PS00011; GLU_CARBOXYLATION;
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(Rel. 34, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
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                                                                                            GLABONE.
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GAMMA-CARBOXYGLUTAMIC AC:
GAMMA-CARBOXYGLUTAMIC AC:
GAMMA-CARBOXYGLUTAMIC AC:
BY SIMILARITY.

C20116014D0C4958 CRC64;
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Pred. No.
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RESULT 6
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21-JUL-1986
01-AUG-1990
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-90245603; PubMed-2336375;
Kiefer M.C., Saphire A.C.S., Bauer D.M., Ba
Kiefer M.C., Saphire A.C.S. Bauer D.M., Ba
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SEQUENCE
                                                                                                                                                                                                                                                                          "Primary structure of the gamma-carboxyglutamic acid-containing protein from boyine bone.";
Proc. Natl. Acad. Sci. U.S.A. 73:3374-3375(1976).
-1- EUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BIT STRONGLY TO APATITE AND CALCIUM.
-1- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-JUL-1986 (Rel. 01, Created)
01-AUG-1990 (Rel. 15, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic
(Bone Gla-protein) (BGP).
                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produbetween the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There a
        Calcium-binding; Gamma-carboxyglutamic Bone; Signal.
                               PRINTS; PRO0002; GLABONE.
SMART; SM00069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION;
                                                                InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA
Pfam; PF00594; 9la; 1.
                                                                                                  PIR; A03303; GEBO.
PIR; S12653; S12653.
                                                                                                                                                                       modified and this statement entities requires a license
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Mammalia; Eutheria;
Bovidae; Bovinae; B
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                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=77036749; PubMed=1068450; Price P.A., Poser J.W., Raman N.;
                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 52-100
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SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
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X51700; CAA35997.1;
                                                                                                                                                             an email to license@isb-sib.ch).
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7A9A8F63A12E6047 CRC64;
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Pred. No.
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21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Shimomura H., Kanai Y., Sanada K.;
"Primary structure of cat osteocalcin.";
J. Biochem. 96:405-411(1984).
-!- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN.
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SMART; SM00069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K;
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-!- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES
DEPENDENT CARBOXYLATION. THESE RESIDUES A
BINDING OF CALCIUM.
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Mammalia; Eutheria;
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Eukaryota; Metazoa; Chordata;
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InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; gla; 1.
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100.0%;
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100.0%;
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OSTEOCALCIN.
OSTEOCALCIN.
HYDROXYLATION.
HYDROXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
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Pred. No. 2.9
0; Mismatches
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
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Pred. No.
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    PRT;
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ACID.
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Felis.
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OSTC_CANEA

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AC P81455
DT 15-DEC
DT 15-DEC
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DT 15-DEC
DT 05-E00
DE STEOO
DE GALEO
GN BGLAP.
OS CANIS
OC MAMMAI
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RN [1]
RP SEQUEN
RX MEDLIN
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Best Local S
Matches 15
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15-DEC-1998
15-DEC-1998
15-JUN-2002
Osteocalcin
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MOD_RES

MOD_RES

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SEQUENCE
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canine bone.";
J. Bone Miner. Res. 8:733-743(1993).
-!- FUNCTION: CONSTITUTES 1-2% OF TH
STRONGLY TO APATITE AND CALCIUM.
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01-FEB-1995 (Rel. 31, Created)
01-FEB-1995 (Rel. 31, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
0steocalcin (Gamma-Carboxyglutamic acid-containing
                                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
NCBI_TaxID=9615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Virdi A.S., Willis A.C., Hauschka P.V., Triffitt J.T "Primary aminoacid sequence of rabbit osteocalcin."; Biochem. Soc. Trans. 19:373S-373S(1991).
-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PRO
                                                                                                                                                                              Canis familiaris (Dog).
Canis familiaris (Dog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRONGLY TO APATITE AND CALCIUM.

-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES & BINDING OF CALCIUM.
                                                                                  MEDLINE=93318657; PubMed=8101026; Colombo G., Fanti P., Yao C., Malluche
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00002; GLAISMART; SM00069; GLA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002384; GLA_bone.
InterPro; IPR002294; VitK_dep_GLA.
Pfam; PF00594; 91a; 1.
PRINTS; PR00002; GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                 "Isolation and complete
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PS00011; GLU_CARBOXYLATION; 1.
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9 AA;
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(Rel. 37, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
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Metazoa; Chordata; Craniata; Ve
utheria; Lagomorpha; Leporidae;
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                                                                                                                                                                                                                                                                                                                                STANDARD;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 15;
Pred. No.
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BY SIMILARITY.
7B218871F0312253 CRC64;
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                                                                    acid
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                                                                                                                                                                                 Craniata; Vertebrata;
                                                                                                                                                               Fissipedia;
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                    THE
                                                                    sequence
                     TOTAL
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                                                                                   H.H.;
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es 0;
                                                                                                                                                                  Canidae;
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                                                                    of
                     BONE
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                                                                    osteocalcin
                     PROTEIN.
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ACID.
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Canis.
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RESULT 10
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OSTC_CHICK
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PO2822; Q90620;
DT
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15-JUL-1998 (Rel. 36, La
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16-JUN-2002 (Rel. 41, La
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Best Local S
Matches 14
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MOD_RES
MOD_RES
                                                                                                                                                                                                                                           osteocalcin, a gamma-carboxyglutamic chicken bone.";
J. Biol. Chem. 256:9944-9950(1981).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
STRAIN-White leghorn; TISSUE-Bone;
MEDLINE-95266465; PubMed-7747623;
MEDLINE-95266465; PubMed-7747623;
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                                                                                                                                                                                                                                                                                                                                                                                                                "Characterization of structural sequences in gene: expression of osteocalcin by maturing hypertrophic chondrocytes in vitro.";
J. Bone Miner. Res. 10:157-163(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Neugebauer B.M., Moore M.A.,
Hauschka P.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Calcium-binding;
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                                                                                                                                                    BIO1. Chem. 256:9944-9950(1981).
FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE STRONGLY TO APATITE AND CALCIUM.
PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE DEPENDENT CARBOXYLATION. THESE RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING OF CALCIUM.
SIMILARITY: BELONGS
FAMILY.
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                                                                                                                                                                                                                                                                                                         S.A., Hauschka P.V., Biemann K.; chromatographic mass spectrometric sequence
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                                                                                                               OF CALCIUM.
ITY: BELONGS
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Swiss Institute
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(Gamma-carboxyglutamic
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SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE-89251082; PubMed=2785907;
Theofan G., Haberstroh L.M., Price P.A.;
Theofan G., Haberstroh the rat bone Gla protein
"Molecular structure of the rat bone Gla protein
"Molecular structure regulatory elements.";
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                                                                                                                  MEDLINE-89118266; PubMed-3265336; Yoon K., Rutledge S.J.C., Buenaga R.F., Rodan 'Toon K., Rutledge S.J.C., Buenaga R.F., Rodan 'Characterization of the rat osteocalcin gene: promoter activity by 1,25-dihydroxyvitamin D3. Biochemistry 27:8521-8526(1988).
                                                                                                                                                                             SEQUENCE FROM N.A. MEDLINE-89118266;
                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=85298305;
                                                                                                                                                                                                                                                                                                                                                    "Isolation of the human
                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
MEDLINE-87004555; Pubmed-3019668;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Rattus norvegicus (Rat).
Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-AUG-1987 (Rel. 05, Created)
13-AUG-1987 (Rel. 05, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic (Bone Gla-protein) (BGP).
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                                                                                                                                                                                                                     Pan L.C., Price P.A.;
"The propeptide of rat bone gamma-carboxyglutamic acid nomology with other vitamin K-dependent protein precurs proc. Natl. Acad. Sci. U.S.A. 82:6109-6113(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; U10578; AAA78809.1;
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PIR; A25167; GERT.
PIR; A25471; A25471.
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"Structure of the rat osteocalcin gene and regulation dependent expression.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     use by non-profit institutions as long modified and this statement is not removed
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FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE
STRONGLY TO APATITE AND CALCIUM.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SS-PROT entry is copyright. It is produced through the Swiss Institute of Bioinformatics and the EN
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DISULFID
SEQUENCE
                                                               Price P.A., Otsuka A.S., Poser J.W.;

"Comparison of gamma-carboxyglutamic acid-containing proteins from bovine and swordfish bone: primary structure and Ca++ binding.";

(In) Wasserman R.H., Corradino R.A., Carafoli E., Kretsinger R.H., Maclennan D.H., Siegel F.L. (eds.);

Calcium-binding proteins and calcium function, pp.333-337,

Elsevier, New York (1977).

-i- EUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.

-i- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE
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InterPro;
                                                                                                                                                                                                                                                                                                                                                                         Xiphias gladius (Swordfish).
Eukaryota, Metazoa; Chordata; Craniata; Vertebrata;
Actinopterygii; Neopterygii; Teleostei; Euteleostei
Acanthomorpha; Acanthopterygii; Percomorpha; Percif
Xiphiidae; Xiphias.
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Sparus aurata (Gilthead sea bream).
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PROSITE; PS00011; GLU_CARBOXYLATION; PARTIAL.
Calcium-binding; Gamma-carboxyglutamic acid; Vitamin
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NCBI_TaxID=8245;
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J. Pept. Protein Res. 46:419-423(1995).
FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PSTRONGLY TO APATITE AND CALCIUM.
PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FDEPENDENT CARBOXYGLUTAMIC RESIDUES ARE F
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                        BINDING OF (
SIMILARITY:
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GAMMA-CARBOXYGLUTAMIC
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Best Local
                                                                                                                                                                                                                                                                                                                                            TIS SUBCELLULAR LOCATION: Nuclear (Potential).

-I SUBCELLULAR FOUND IN LIVER, KIDNEY AND INTESTINE FOLLOWED BY SPICES AND DRAY.

-I SUBCELLULAR LOCATION: Nuclear (Potential).

-I SUBCELLULAR LOCATION LIVER, KILDREY AND INTESTINE FOLLOWED BY SPLEEN AND TO A LESSER EXTENT THE ADRENALS.

-I SUBCELLULAR LOCATION: BY 9-CIS RETINOIC ACID (9CRA).

-I SUBCENALTY: BELONGS TO THE NUCLEAR HORNONE RECEPTOR FAMILY.
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Genes De
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PROSITE; PRO0001; GLU_CARBOXYLATION; 1.

PROSITE; PRO0001; GLU_CARBOXYLATION; 1.

Calcium-binding; Gamma-carboxyglutamic acid; Vitamin MOD_RES

13
13
GAMMA-CARBOXYGLUTAMIC AC MOD_RES
17
17
MOD_RES
20
20
GAMMA-CARBOXYGLUTAMIC AC GAMMA-CARBOXYGLU
                     EMBL; U22662; AAA85856; HSSP; P03372; 1HCQ. TRANSFAC; T02752; -.
                                                                                                                                                                                                  use
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30-MAY-2000 (Rel. 39, Last sequence update)
3-JUN-2002 (Rel. 41, Last annotation update)
Oxysterols receptor LXR-alpha (Liver X receptor alpha)
receptor LXR-alpha).
NR1H3 OR LXRA.
                                                                                                                          entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Willy P.J., Umesono Mangelsdorf D.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE-95262897; PubMed-7744246; Willy P.J., Umesono K., Ong E.S., Evans R.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NRH3_HUMAN
Q13133;
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InterPro; IPR000294; VitK_dep_
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                                                                                                                                                                                            s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the EM European Bioinformatics Institute. There are no restr by non-profit institutions as long as its content
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7; Conserv
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                                                                                                                                                                          non-profit institutions as long and this statement is not removed
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Pred. No.
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                                                                                                                                                                       Usage
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                                                                                                                                                                                                                          restrictions
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Query Match
Best Local Similarity
Matches 7; Conserv
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Best Local (
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InterPro; IPR001628; Znf_C4stero
Pfam; PF00104; hormone_rec; 1.
Pfam; PF00105; Zf-C4; 1.
PRINTS; PR00398; STRDHORMONER.
PRINTS; PR00047; STROIDFINGER.
PRODOM; PD000035; Znf_C4steroid;
                                              Nonstructural protein.
DOMAIN 9 19
DOMAIN 162 170
DOMAIN 171 182
SEQUENCE 586 AA; 65428 M
                                              DOMAIN
DOMAIN
DOMAIN
SEQUENCE
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01-APR-1993
65 kDa early
                                                                                                                                               use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for one at license agreement.
                                                                                                                                                                                                                                             Chee M.S., Bankier A.T., Beck S., Bohni R., Brown C.M., Cerny R., Horsnell T., Hutchison C.A. III, Kouzarides T., Martignetti J.A., Preddie E., Satchwell S.C., Tomlinson P., Weston K.M., Barrell B.G.; "Analysis of the protein-coding content of the sequence of human ... "cytomegalovirus strain AD169.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA_BIND ZN_FING ZN_FING
                                                                                                                                          or send an email to license@isb-sib.ch).
                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                       Viruses; dsDNA viruses, no RNA staq
Betaherpesvirinae; Cytomegalovirus
                                                                                                       EMBL; X17403
PIR; S09848;
                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE=90269039; PubMed=2161319;
                                                                                                                                                                                                                                                                                                                                                                 Human cytomegalovirus (strain AD169).
Viruses; dsDNA viruses, no RNA stage; Herpesviridae;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                 P16727;
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                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10360;
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Receptor; Transcription
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                                                                                                                                                                                                                                     Top. Microbiol. Immunol. 154:125-169(1990).
                                                                                                                    X17403; CAA35358.1;
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                                                                                                                                                                                                                                                                                                                                                                                                     early
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  Conservative
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             100.0%;
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Pred. No
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                                              ARG-RICH (BASIC).
LYS-RICH (BASIC).
ASP/GLU-RICH (ACIDIC).
$\( 54AB912D6077223F\) CRC64;
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C4-TYPE.
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   Mismatches
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               No.

    DNA-binding; Nuclear protein;

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RESULT 16

RESULT 16

P29839

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DT 65 kDa
GN ULBA-
OS Human
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15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
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65 kDa early
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P29839;
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specification in zebrafish embryos. Proc. Natl. Acad. Sci. U.S.A. 94:30
              MEDLINE=97250493; PubMed=9096349;
Conway G., Margollath A., Wong-Madden S., Roberts
"Jakl kinase is required for cell migrations and a
                                                                                                                                         Eukaryota; Metazoa;
Actinopterygii; Neo;
Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                BRARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               He Y.S., Xu L., Huang E.S.; "Characterization of human cytomegalovirus UL84 early gene and identification of its putative protein product."; J. Virol. 66:1098-1108(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human cytomegalovirus (strain Towne). Viruses; dsDNA viruses, no RNA stage;
                                                                      TISSUE=Gastrula;
                                                                                                                                                                                 Brachydanio rerio
                                                                                                                                                                                                                                                                                JAK1_BRARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
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                                                                                     FUNCTION
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                                                                                                EQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                              42 YRRFYGP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 587 AA;
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171
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(Rel. 25, Last sequence up
(Rel. 25, Last annotation
y nonstructural protein (UL
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                                                                                                                                                                    (Zebrafish)
a; Chordata;
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183
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Cytomegalovirus.
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LYS-RICH (BASIC).
ASP/GLU-RICH (ACIDIC).
; 13C170E41FB3220B CRC64;
                                                                                                                                                      Teleostei;
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Craniata; Vert
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(UL84 prot
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Herpesviridae,
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Ostariophysi; Cypriniform
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                                                                                                MUTAGENESIS
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    (Jak-1).

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the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
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                                                                                                                                                                                                                                                                                                                                                                                                                                   entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <del>.</del>
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SEQUENCE OF 443-1153 FROM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-99445372; PubMed-10515866;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the blastula stage where it is distributed uniformly. Levels drop rapidly at four hours development, remain very low until 10 hours, then gradually increase from 12 hours with a rapid increase at 48 hours. At 48 hours it is concentrated in the region of the gill arches. Also present in the adult.

DOMAIN: Possesses two phosphotransferase domains. The second one probably contains the catalytic domain, while the presence of slight differences suggest a different role for domain 1.

SIMILARITY: BELONGS TO THE TYR FAMILY OF PROTEIN KINASES. JAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         required in early development for specific cell migrations (epiboly), expression of homeobox protein goosecoid and formatiof anterior structures.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: CONTAINS 1 SH2 DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       associated (By similarity).
DEVELOPMENTAL STAGE: Present in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBCELLULAR LOCATION: Wholly intracellular,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               the Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                 CAA06673.1; -.
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proDom; pD000001; Euk_pkinase; 2.
proDom; pD000093; SH2; 1.
SMART; SM00205; B41; 1.
SMART; SM00205; SH2; 1.
SMART; SM00219; TyrKc; 1.
SMART; SM00219; TyrKc; 1.
SMART; SM00219; TyrKc; 1.
PROSITE; PS00107; PROTEIN_KINASE_ATP; 1.
PROSITE; PS00109; PROTEIN_KINASE_TYR; 1.
PROSITE; PS00109; PROTEIN_KINASE_TYR; 1. InterPro; IPRO00299; E InterPro; IPRO00719; E InterPro; IPRO00980; S InterPro; IPRO01245; T CONFLICT CONFLICT CONFLICT ACT_SITE MOD_RES MUTAGEN EMBL; HSSP; DOMAIN DOMAIN Pfam; BINDING MP_BIND DOMAIN DOMAIN SH2 domain; Transferase; Pfam; PF00069; ZFIN; PF00017; SH2; 1 ZDB-GENE-980526-142; jak1. P11362; 1FGK Repeat;
336 3
435 5
580 8
872 11
878 8
905 9
1000 10
1031 10
905 9 649 770 799 978 Tyrosine-protein kinase; ATP-binding; pkinase; 356 540 846 1150 1886 905 1000 1031 Developmental protein Euk_pkinase SH2. Tyr_pkinase Band_ DEFECTS
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T -> S (
S -> T (PROTEIN KINASE 1.
PROTEIN KINASE 2.
ATP (BY SIMILARITY). LYS-RICH (BASIC). SH2 (ATYPICAL). K->E: PHOSPHORYLATION (AUTO-) BY SIMILARITY ATP REF. ATION (AUTO-) (BY SIMILARITY).
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01-NOV-1997
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SEQUENCE
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ProDom; PD005521; RIBOSOMAL_S21; 1.
TIGRFAMS; TIGR00030; S21p; 1.
PROSITE; PS01181; RIBOSOMAL_S21; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AE001484; AAD06085.1; -. InterPro; IPR001911; Ribosomal_S21. Pfam; PF01165; Ribosomal_S21; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alm R.A., Ling L.-S.L., Moir D.T., King B.L., Brown E.D., Doi Smith D.R., Noonan B., Guild B.C., deJonge B.L., Carmel G., Tummino P.J., Caruso A., Uria-Nickelsen M., Mills D.M., Ives Gibson R., Merberg D., Mills S.D., Jiang Q., Taylor D.E., Vov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. MEDLINE-99120557; PubMed-9923682;
  30S ribosomal
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Bacteria; Proteobacteria; epsilon subdivision; Hel
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OSTC_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                  NCBI_TaxID=10090;
                                                                                                                                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                               Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                P04641;
                                                                                                                                                                                                                                                                                                                                                                                                   OSTC_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ribosomal protein; SEQUENCE 70 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Venter J.C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=210;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RPSU OR HP0562.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "The complete genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40 EAYRRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EAYRRF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HP0562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
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rat cDNA clones.";
EMBO J. 5:1885-1890(1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                               13-AUG-1987 (Rel. 05, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic (Bone Gla-protein) (BGP).
BGLAP1 AND BGLAP2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry ...
between the Swiss Institute of Blu....
the European Bioinformatics Institute. Ther
the European Bioinformatics on the strength of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-97394467; PubMed-9252185;

Tomb J.-F., White O., Kerlavage A.R., Clayton R.A., Sutton G.G., Fleischmann R.D., Ketchum K.A., Klenk H.-P., Gill S., Dougherty B.A. Nelson K., Quackenbush J., Zhou L., Kirkness E.F., Peterson S., Loftus B., Richardson D., Dodson R., Khalak H.G., Glodek A., McKenney K., FitzGerald L.M., Lee N., Adams M.D., Hickey E.K., McKenney K., Gocayne J.D., Utterback T.R., Peterson J.D., Kelley J.M. Cotton M.D., Weidman J.M., Fujii C., Bowman C., Watthey L., Wallin Hayes W.S., Borodovsky M., Karp P.D., Smith H.O., Fraser C.M.,
                                                                                                                 SEQUENCE FROM N.A.
MEDLINE-87004555; PubMed-3019668;
Celeste A.J. Buceker J.L., Kriz
"Isolation of the human gene for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRINTS; PR00976; RIBOSOMĀLS21.
PRODOS521; RIBOSOMĀLS21; 1.
TIGREAMS; TIGR00303; S21p; 1.
PROSITE; PS01181; RIBOSOMAL_S21; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produbetween the Swiss Institute of Bioinformatics
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STRAIN=26695 / ATCC 700392;
MEDLINE=97394467; PubMed=92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR001911; Ribosomal_S21.
Pfam; PF01165; Ribosomal_S21; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pylori.";
Nature 388:539-547(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Helicobacter pylori (Campylobacter pylori).
Bacteria; Proteobacteria; epsilon subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE000570; AAD07628.1; -. HP0562; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BELONGS
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8613 MW; 417A8696B1A03B76 CRC64;
                                                                                                                                                                                                                                                                                                                                             Chordata;
Rodentia;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 6; DB 1
Pred. No. 6.3
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
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bone
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                                                                                                                     E.A., Wozney J.M. protein utilizing
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                                                                                                                                                                                                                                                                                                                                                 Muridae;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     and the
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70;
                                                                                                                                                                                                                                                                                                                                                 Murinae;
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                                                                                                                         mouse
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                    Query Match
Best Local
      Matches
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                                                                               VARIANT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   separate
J. Biol.
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MEDLINE-94062692; PubMed-8243336;
Rahman S., Oberdorf A., Montecino M.,
Stein G.S., Laipis P.J., Stein J.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                              DISULFID
                                                                                                                                                                                                   MOD_RES
                                                                                                                                                                                                                                                                                                                                           SIGNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pfam; PF00594;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yotov W.V., St Arnaud R. Submitted (JUL-1994) to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-C57BL/6J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM
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                                                                                                                                        VARIANT
                                                                                                                                                                                                                                       MOD_RES
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                                                                                                                                                                                                                                                                                                    CHAIN
                                                                                                                                                                                                                                                                                                                                                             Multigene
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                                                                                                                                                                                                                                                                                                                                                                                                                                          PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           MGD; MGI:88156; Bglap1.
MGD; MGI:88157; Bglap2.
InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; gla; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "The mouse osteocalcin gene cluster contains three genes with separate spatial and temporal patterns of expression.";
J. Biol. Chem. 269:1183-1190(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Desbois C., Hogue D.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Endocrinology 133:3050-3053(1993)
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                                                                                                                                                                                                                                                                                                                         PROPEP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BINDING OF CALCIUM.

MISCELLANEOUS: THERE ARE TWO GENES CODING FOR OSTEOCALCIN, 1
CODING SEQUENCE ONLY DIFFERS IN THE SIGNAL PEPTIDE REGION.
SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: CONSTITUTES 1-2% OF TH
STRONGLY TO APATITE AND CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE SPECIFICITY: BONE.
PTM: GAMMA-CARBOXYGLUTAMIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEPENDENT CARBOXYLATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                    PF00594; gla; 1
s; PR00002; GLAB
; SM00069; GLA;
  Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                  PS00011;
                                                                                                                                                                                                                                                                                                                                                           family.
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11
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23
      Conservative
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62
                    100.0%;
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to the EMBL/GenBank/DDBJ databases.
UTES 1-2% OF THE TOTAL BONE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                    _CARBOXYLATION; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Karsenty G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          bone-specific osteocalcin gene
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  0;
  Score 6; DB 1
Pred. No. 8.2
0; Mismatches
                                                                                                                                        -> ST
                                                                                                                                                        GAMMA-CARBOXYGLUTAMIC (BY SIMILARITY).
BY SIMILARITY.
                                                                                                                                                                                                                                       GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                            GAMMA-CARBOXYGLUTAMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                  PROBABLE.
OSTEOCALCIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        THESE
                                                                                                                                                                                                                       BY SIMILARITY)
                                                                             D4AA611134805D9B CRC64;
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                                                                                                 T (IN BGLAP2).
P (IN REF. 1).
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                                                                                                                                                                                                                                                                                                                                                                                  acid; Vitamin
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  0;
                                    Length 95;
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                                                                                                                                                                                                                                                                                                                                                                             Bone; Signal;
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01-OCT-1996
01-OCT-1996
15-JUN-2002
                                                                                                                                                                    EMBL; L24430;
EMBL; S67456;
EMBL; U11541;
                               PROPEP
CHAIN
                                                                                                                    YOTOV W.V., St Arnaud R.;

Yotov W.V., St Arnaud R.;

Submitted (JUL-1994) to the EMBL/GenBank/DDBJ databases

Submitted (JUL-1994) to the EMBL/GenBank/DDBJ databases
MOD_RES
                                                                       rnosirs; rsuduli; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic
                                                                                                  PRINTS; PR00002; GLAISMART; SM00069; GLA;
                                                                                                                                                                                                                entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=94117426; PubMed=8288580; Desbois C., Hogue D.A., Karsenty G.; Price mouse osteocalcin gene cluster conseparate spatial and temporal patterns J. Biol. Chem. 269:1183-1190(1994).
                                                       SIGNAL
                                                                                                                                                                                                                                                               the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rahman S., Oberdorf A., Montecino M., Stein G.S., Laipis P.J., Stein J.L.; "Multiple copies of the bone-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Osteocalcin-related
                                                                  Multigene
                                                                                                                                                                                                                                                                          between
                                                                                                                                                                                                                                                                                      This
                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-129/SvJ; TISSUE-Liver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus (Mouse).
                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Endocrinology 133:3050-3053(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. MEDLINE=94062692;
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MEDLINE=94117426;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
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                                                                                                                                                                                                                                                             s SWISS-PROT entry is copyright. It is produced through a collaboration ween the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                        FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN STRONGLY TO APARITE AND CALCIUM.

TISSUE SPECIFICITY: EXPRESSED IN KIDNEY BUT NOT IN E PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIA
                                                                                                                                                                                                                                                                                                                    BINDING OF CALCIUM (BY SIMILARITY). SIMILARITY: BELONGS TO THE OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PDPLEP
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                                                                                                                                                                                                                                        non-profit institutions as long and this statement is not removed.
                                                                  family.
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                                                                                                                                                                    AAB29146.1;
AAB29146.1;
AAB60445.1;
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50
62
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                                                                                                               GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34, Last sequence up
41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=8243336;
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Rodentia;
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49
95
62
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         PROBABLE.
OSTEOCALCIN-RELATED PROTEIN.
GAMMA-CARBOXYGLUTAMIC ACID
(BY SIMILARITY).
GAMMA-CARBOXYGLUTAMIC ACID
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Sciurognathi;
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(OC-X) (Nephrocalcin)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               osteocalcin
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thi; Muridae;
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Matches 6
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16-0CT-2001 (Rel. 40, Created)
16-0CT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
19-JUN-2002 (Rel. 40, Last annotation update)
19-JUN-2002 (Rel. 40, Last annotation update)
19-JUN-2003 (Rel. 40, Last sequence)
19-JUN-2003 (R
                                                                                                                                                                                                                                                                                                                                                      Shirai M., Hirakawa H., Kimoto M., Tabuchi M., Kishi F., Shiba T., Ishii K., Hattori M., Kuhara S., Nakazawa T.; "Comparison of whole genome sequences of Chlamydia pneumc from Japan and CWL029 from USA."; Nucleic Acids Res. 28:2311-2314(2000).
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SEQUENCE
                                                                                                                                                                         modified and this statement is not removed. entities requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE-20150255; PubMed-10684935; Read T.D., Brunham R.C., Shen C., Gill S.R., White O., Hickey E.K., Peterson J., Utterback Linher K., Weidman J., Khouri H., Craven B., Gwinn M., Nelson W., DeBoy R., Kolonay J., McEisen J., Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kalman S., Mitchell W., Marathe R., Lammel C., Fan J., Hyman R.W., Olinger L., Grimwood J., Davis R.W., Stephens R.S.; "Comparative genomes of Chlamydia pneumoniae and C. trachomatis."; Nat. Genet. 21:385-389(1999).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Genome sequences of Chlamydia pneumoniae AR39.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
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                                                nterPro;
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AE002177; AAF38037.1;
AP002547; BAA98799.1;
CP0156; -
  Pro; IPR002696; DUF37.
PF01809; DUF37; 1.
m; PD004225; DUF37; 1.
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back T., Berry
B., Bowman C.,
MCClarty G.,
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y K., Bass S.,
, Dodson R.,
, Salzberg S.L.,
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Matches 6
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MP2_NRBI STANDARD; PRT; 119 AA.

980255;
01-OCT-1993 (Rel. 27, Created)
01-OCT-1993 (Rel. 27, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
16-OCT-2001 (Rel. 40, Last annotation update)
Non-metallothionein cadmium-bindling protein (CD-BP) (MP II).
Nereis diversicolor (Sandworm) (Hediste diversicolor)
Eukaryota; Metazoa; Annelida; Polychaeta; Palpata; Aciculata;
Phyllodocida; Nereididae; Neanthes.

NCBI_TaxID-6352;
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15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Cystatin (Egg-white cystatin).
Coturnix coturnix japonica (Japanese quail).
Eukaryota; Metazoa; Chordata; Craniata; Vert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PROSITE;
Thiol pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hypothetical protein; Complete SEQUENCE 103 AA; 11751 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerhartz B., Engh R.A., Mentele R., Eckerskorn C., Torquato R., Wittman J., Kolb H.J., Machleidt W., Fritz H., Auerswald E.A.; "Quail cystatin: isolation and characterisation of a new member
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGREAMS; TIGRO0278; DUF37; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEBS Lett.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the cystatin family and its hypothetical interaction B.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE=Egg white;
MEDLINE=97420480;
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CE9CA4852EA15A7C CRC64;
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Metal-binding; C
Metal-binding; C
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Colella R., Sakaguchi Y., Nagase H., Bi
"Chicken egg white cystatin Molecular
and tissue distribution.";
J. Biol. Chem. 264:17164-17169(1989).
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SEQUENCE.
"Protein inhibitors of cysteine proteinases. III. Amino-acid sequence of cystatin from chicken egg white.";
Hoppe-Seyler's Z. Physiol. Chem. 364:1487-1496(1983).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A. MEDLINE=90008873; PubMed=2793849;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     metalloprotein (MP II) diversicolor.";
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MEDLINE=91347123;
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from Nereis diversicolor (annelida,
myohemerythrin structure.";
Eur. J. Biochem. 217:151-156(1993).
                                                                                                       Turk V., Brz
Machleidt W.
                                                                                                                                                                                                                                                                               MEDILINE-84178305; PubMed-6712597; Schwabe C., Anastasi A., Crow H., Nowystatin. Amino acid sequence and Biochem. J. 217:813-817(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE OF 24-139.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gallus gallus (Chicken)
Eukaryota; Metazoa; Chor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cystatin precursor (Egg-white cystatin).
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PIR; S38261; S38261.
HSSP; P02247; 2MHR.
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                                                                                                                                                                               MEDLINE=84110059;
                                                                                                                                                                                                               SEQUENCE OF 24-139.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Archosauria;
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TIGREAMS; TIGRO0058; Hemerythrin; 1.
PROSITE; PS00550; HEMERYTHRINS; 1.
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FUNCTION: MAY ACT AS A BUFFER TO CONTROL THE CONCENTRATION
THEREFORE THE TOXICITY OF CADMIUM.
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S., Li K.W., van der Schors R., Dhainaut-Courtois N.;
S., Li K.W., van der Schors R., Dhainaut-Courtois N.;
                                                                                                                                           Brzin J.,
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AA; 1345
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                                                                                                                                           Longer
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Neognathae; Galliformes; Phasianidae; Phasiani
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PIR; A01274; UDCH.
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PDB; 1A67; 27-MAY-98.
PDB; 1A90; 17-JUN-98.
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TURN
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Pfam; PF00031; cystatin; 1.
SMART; SM00043; CY; 1.
                                                                                                                                                                                                                                                                                                                                                                                            entities requires a license agreement (See http://www.isb-sib.ch/announce/or_send an email to license@isb-sib.ch).
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CHARACTERIZATION OF PROTEIN
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MEDLINE=89052676; PubMed=3191914;
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FUNCTION: THIS PROTEIN BINDS TIGHTLY TO AND INHIBITS A VARIETY
THIOL PROTEASES INCLUDING FICIN, PAPAIN, AND CATHEPSINS B, C, H
THIOL PROTEASES INCLUDING FROM EGG WHITE, IT IS ALSO PRESENT IN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lett. 248:162-168(1989).
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                                                                                                                                                                                                                                                                                                         use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for no entitles requires a linear model of the statement is not removed.
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RESULT 27
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RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Borriss R., Boursier L., Brans A., Braun M., Brignell S.C., Bron S.,
RA Borriss R., Boursier L., Brans A., Braun M., Brignell S.C., Bron S.,
RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Broillet S., Devine K.M., Dusterhoft A., Ehrlich S.D., Emmerson P.T.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Denizot F., Devine K.M., Dusterhoft A., Ehrlich S.D., Emmerson P.T.,
RA Chim S.Y., Glaser P., Goffeau A., Golightly E.J., Grandi G.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Guiseppi G., Guy B.J., Haga K., Haiech J., Harwood C.R., Henaut A.,
RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Kobayashi Y., Koetter P., Koningstein G., Krogh S., Kumano M.,
RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kobayashi Y., Koetter P., Koningstein G., Krogh S., Kumano M.,
RA Medina N., Meilado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Medina N., Meilado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Parro V., Pohl T.M., Portetelle B., Roche B., Rose M., Sadaie Y.,
RA Seiguchi J., Sekowska A., Serror S.J., Serror P., Shin B.S., Soldo B.,
RA Seiguchi J., Sekowska A., Serror S.J., Serror P., Shin B.S., Soldo B.,
RA Takeuchi M., Tamakoshi A., Tanaka T., Terpstra P., Tognoni A.,
RA Takeuchi M., Tamakoshi A., Tanaka T., Terpstra P., Tognoni A.,
RA Winters P., Wipat A., Yamamoto H., Yamane K., Yasumoto K., Yata K.,
Yoshikawa H.F., Zumstein E., Yoshikawa H., Danchin A.,
RA Winters P., Wipat A., Yanamoto H., Yamane K., Yasumoto K., Yata K.,
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Nature 390:249-256(1997).

Nature 390:249-256(1997).

-I FUNCTION: ROLE IN GROWTH AND SPORULATION ON ACETOIN INVOLVED IN THE BREAKDOWN OF THESE COMPOUNDS USED AS SOURCE. COULD ACT AS AN ACETYLTRANSFERASE.

-I STMILARITY: LOCAL, TO A VARIETY OF ACETYLTRANSFERASI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98048467; PubMed=9387221;
Lapidus A., Galleron N., Sorokin A., I
Espequencing and functional annotation
in the 200 kb rrnB-dnaB region.";
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Bacteria; Firmicutes;
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15-JUN-2002
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                                                                                                                                    Yoshida K., Yoshikawa H.F., Zumstein E., Yoshikawa The complete genome sequence of the Gram-positive
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(Rel. 31,
(Rel. 41,
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Last annotation updat
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ACETYLTRANSFERASES

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NADA_METTH
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RX Smith D.R., Doucette-Stamm L.A., DeLoughery C., Lee H.-M., Dubois J.,
RA Aldredge T., Bashirzadeh R., Blakely D., Cook R., Gilbert K.,
RA Aldredge T., Bashirzadeh R., Blakely D., Cook R., Gilbert K.,
RA Harrison D., Hoang L., Keagle P., Lumm W., Pothier B., Qiu D.,
RA Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R.,
RA Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R.,
RA Diwani N., Caruso A., Bush D., Safer H., Patwell D., Prabhakar S.,
RA McDougall S., Shimer G., Goyal A., Pletrovski S., Church G.M.,
RA Daniels C.J., Mao J.-I., Rice P., Noelling J., Reeve J.N.;
"Complete genome sequence of Methanobacterium thermoautotrophicum
RT deltah: functional analysis and comparative genomics.";
J. Bacteriol 179:7135-7155(1997).
C. I. PUNCTION: Catalyzes the condensation of iminoaspartate with
CC dihydroxyacetone phosphate to form quinolinate (By similarity).
CC -I. PUNCTION: Catalyzes the condensation of minoaspartate with
CC -I. SUBCELLULAR LOCATION: Cytoplasmic (By similarity).
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InterPro; IPRO00182; GCNSacetyltransf.
Pfam; PF00583; Acetyltransf; 1.
Sporulation; Transferase; Acyltransfer
SEQUENCE 210 AA; 24333 MW; 74DB94A
                                                                                        use by non-profit institutions as long modified and this statement is not removed: entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN-Delta H;
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Archaea; Buryarchaeota; Methanobacteria; Methanobacteriales;
Methanobacteriaceae; Methanothermobacter.
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                               EMBL; AE000936; AAB86293.1;
                                                                                                                                                                                                                the European Bioinformatics Institute.
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InterPro; IPR003473;
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15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
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It is produced through a collaboration

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RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Borriss R., Boursier L., Brans A., Braun M., Brignell S.C., Bron S.,
RA Borvillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Choi S.K., Codani J.J., Fabret C., Ferrari E., Foulger D.,
RA Choi S.K., Codani J.J., Fabret C., Ferrari E., Foulger D.,
RA Choi S.K., Codani J.J., Fabret C., Ferrari E., Foulger D.,
RA Choi S.K., Codani J.J., Fabret C., Ferrari E., Foulger D.,
RA Choi S.K., Codani J.J., Lasher C., Ferrari E., Foulger D.,
RA Choi S.K., Codani J.J., Haga K., Haich J., Galizzi A., Galleron N.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Guiseppi G., Guy B.J., Haga K., Haiech J., Harwood C.R., Henaut A.,
RA Hibert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Hibert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L.,
RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V.,
RA Kurita K., Lapidus A., Liu H., Masuda S., Mauel C., Medigue C.,
RA Medina N., Melado R.P., Mizuno M., Moest I.D., Nakai S., Noback M.,
RA Moone D., O'Reilly M., Ogawa K., Ogiwara A., Oudega B., Park S. H.,
RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Parso V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M.,
RA Parso V., Pohl T.M., Portetelle B., Rapoport G., Rey M., Reynolds S.,
RA Ra Sekiguchi J., Sechusek B., Rapoport G., Rey M., Sadaie Y.,
RA Sekiguchi J., Sechusek B., Serror S.J., Serror P., Shin B.S., Soldo B.,
RA Vinters P., Wibat A., Yanamoto H., Yanaher F., Vassmotti A.,
Vata N., Vata M., Vannaher K., Vasumoto K., Vata K.,
Vata N., Vata M., Vannaher K., Vasumoto H., Vasumoto K., Vasta K.,
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Best Local Similarity
Matches 6; Conserv
                                                               Nature 390:249-256(1997).
-!- SIMILARITY: TO THE OYE OXIDOREDUCTASES.
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15-JUN-2002
                                                                                                                                                                                                                            Winters P., Wipat A., Yamamoto H., Yamane K., Yasumojo K., Yata K.,
Yoshida K., Yoshikawa H.F., Zumstein E., Yoshikawa H., Danchin A.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the Bacillus subtilis
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subtilis.":
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Microbiology 142:3103-3111(1996).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=168 / JH642;
MEDLINE=97124195; P
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Bacteria; Firmicutes;
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                                                                                                                                                                                       Yoshikawa H.F., Zumstein E., Yoshikawa H., Danchin A.; te genome sequence of the Gram-positive bacterium Bacil
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=8969508;
S., Takemaru K.-I.,
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                                                                                                FAMILY OF NADH-DEPENDENT FLAVIN
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STRAIN-ATCC 35210 / B31;

MEDLINE-98065943; PubMed-9403685;

Fraser C.M., Casjens S., Huang W.M., Sutton G.G., Clayton R.A.,

Lathigra R., White O., Ketchum K.A., Dodson R., Hickey E.K., Gw

Dougherty B., Tomb J.-F., Fleischmann R.D., Richardson D.,

Peterson J., Kerlavage A.R., Quackenbush J., Salzberg S., Hanso

van Vugt R., Palmer N., Adams M.D., Gocayne J.D., Weidman J.,

Utterback T., Watthey L., McDonald L., Artiach P., Bowman C.,

Garland S., Fujii C., Cotton M.D., Horst K., Roberts K., Hatch

Smith H.O., Venter T.C.
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                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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EMBL; Z99116; CAB14314.1; -.
Subtilist; BG11742; ydjM.
InterPro; IDR001155; Oxidored_FMN.
Pfam; PF00724; oxidored_FMN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith H.O., Venter J.C.;
"Genomic sequence of a Lyme disease spirochaete, Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Borrelia burgdorferi (Lyme disease spirochete)
Bacteria; Spirochaetales; Spirochaetaceae; Bor
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SEQUENCE 338 AA; 37583 MW; BDC52D34236
                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                 EMBL; AE001117; AAC66428.1;
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  21 EVCELN
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                                               Similarity 100. 6; Conservative
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9 POTENTIAL.
9 PAYPOTHETICAL PROTEIN BB0028
9705 MW; 915B1D34A3214226 CRC64;
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25;
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RESULT 31
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P15535;
01-APR-1990
01-APR-1990
15-JUN-2002
         01-APR-1990 (Rel. 14, Created)
01-APR-1990 (Rel. 14, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Beta-1,4-galactosyltransferase 1 (EC 2.4.1.-) (Beta-1,4-GalTase 1)
(Beta4Gal-T1) (b4Gal-T1) (UDP-galactose:beta-N-acetylglucosamine b
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Bult C.J., White O., Olsen G.J., Zhou L., Fleischmann R.D., Sutton G.G., Blake J.A., FitzGerald L.M., Clayton R.A., Gocayne J.D., Kerlavage A.R., Dougherty B.A., Tomb J.-F., Adams M.D., Reich C.I., Overbeek R., Kirkness E.F., Weinstock K.G., Merrick J.M., Glodek A., Scott J.L., Geoghagen N.S.M., Weidman J.F., Fuhrmann J.L., Nguyen D., Utterback T.R., Kelley J.M., Peterson J.D., Sadow P.W., Hanna M.C., Cotton M.D., Roberts K.M., Hurst M.A., Kaine B.P., Borodovsky M., Klenk H.-P., Fraser C.M., Smith H.O., Woese C.R., Venter J.C.,
                                                                                                                                                                                                                                                                                                                                                                                   EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                          modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SUBCELLULAR LOCATION: Integral membrane
-!- SIMILARITY: TO M.JANNASCHII MJ1507.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q58207;
                                                                                                                                                                                                                                                                                                                                           InterPro; IPR003838; DI
Pfam; PF02687; DUF214;
                                                                                                                                                                                                                                                                                                                                                                        TIGR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Methanococcus jannaschii.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Complete genome sequence of the methanogenic archaeon, annaschil.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=2190;
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                                                                                                                                                          178 YRRFYG
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                                                                                                                                                                                                           6; Conserv
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18 38

239 25;

296 31;

329 34

367 AA;
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                                                                                         STANDARD;
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40,
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259
316
349
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8 POTENTIAL.
9 POTENTIAL.
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; 3CC882FF21ED3746 CRC64;
                                                                                                                                                                                                                                                                                        POTENTIAL.
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Mismatches
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Reich C.I.,
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(EC 2.4.1.22); N-acetyllactosamine synthase (EC 2.4.1.90) (Nal synthetase); Beta-N-acetyllactosaminyl-glycopeptide beta-1,4-galactosyltransferase (EC 2.4.1.88); Beta-N-acetylglucosaminyl-glycolipid beta-1,4-galactosyltransferase (EC 2.4.1.9)] B4GALTI OR GGTB. Mus musculing /M------
                                                                                                                                                                                                                                                                                                  Harduin-Lepers A., Shaper J.H., Shaper N.L.; 
"Characterization of two cis-regulatory regions in the murine 
1,4-galactosyltransferase gene. Evidence for a negative regula 
element that controls initiation at the proximal site.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Harduin-Lepers A., Shaper N.L., Mahoney J.A., Shaper J.H.; "Murine beta 1,4-galactosyltransferase: round spermatid transcripts are characterized by an extended 5'-untranslated region.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            based on cloning studies.";
Biochimie 70:1683-1688(1988).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nakazawa K., Ando T., Kimura T., Narimatsu H.; "Cloning and sequencing of a full-length cDNA of mouse acetylglucosamine (beta 1-4)galactosyltransferase.";
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"Murine beta 1,4-galactosyltransferase: both the amounts and structure of the mRNA are regulated during spermatogenesis.";

proc. Natl. Acad. Sci. U.S.A. 87:791-795(1990).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mus musculus (Mouse)
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                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=93300832; PubMed=8314795;
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                                                                                                                                                  BIOL. Chem. 268:14348-14359(1993).
FUNCTION: THE GOLGI CONFLEX FORM CATALYZES THE PRODUCTION LACTOSE IN THE LACTATING MAMMARY GLAND AND COULD ALSO BE RESPONSIBLE FOR THE SYNTHESIS OF COMPLEX-TYPE N-LINKED OLIGOSACCHARIDES IN MANY GLYCOPROTEINS AS WELL AS THE CARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             characterized by an extendent cobiology 2:361-368(1992).
MOIETIES OF GLYCOLIPIDS.

FUNCTION: THE CELL SURFACE FORM FUNCTIONS AS A RECOGNITI FUNCTION. THE CELL TO WARLETY OF CELL TO CELL AND CELL TO MATTERACTIONS, AS THOSE OCCURRING DURING DEVELOPMENT AND FERTILIZATION, BY BINDING TO SPECIFIC OLIGOSACCHARIDE LI
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is G.F., Shaper N.L.;
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Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         beta-1,4-galactosyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
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                                                             AS A RECOGNITION AND CELL TO MATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                predict
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beta-1,
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                                                                                                                                                                                                                                                                                                                                regulatory
                                                                                                                                                        CARBOHYDRATE
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LIGANDS MATRIX

S S

Вb Qy

231

IGFQEA

36 IGFQEA

41

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Query Match
Best Local
 Matches
                                                       DOMAIN
CARBOHYD
DISULFID
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EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                        EMBL;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entities requires a or send an email to
                                              SEQUENCE
                                                                                                     TRANSMEM
                                                                                                                 DOMAIN
                                                                                                                                                             CHAIN
                                                                                                                                                                                                                               Transferase;
                                                                                                                                                                                                                                                                                                                                                                                                     EMBL;
                                                                                                                                     INIT_MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FORMS IN TRANS CISTERNAE OF GOLGI (LONG AND SHORT FORM) CELL SURFACE (LONG FORM); SOLUBLE FORM IN BODY FLUIDS.
ALTERNATIVE PRODUCTS: 2 ISOFORMS; A LONG/CELL SURFACE FOHERE) AND A SHORT/GOLGI COMPLEX FORM; ARE PRODUCED BY ALTERNATIVE INITIATION.
PIM: THE SOLUBLE FORM DERIVES FROM THE MEMBRANE FORMS BY PROTEOLYTIC PROCESSING.
SIMILARITY: BELONGS TO THE GLYCOSYLTRANSFERASE FAMILY 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CATALTIC ACTIVITY: UDP-galactose + D-glucose = UDP + lactose. CATALTIC ACTIVITY: UDP-galactose + N-acety1-beta-D-glucosaminylglycopeptide = UDP + beta-D-galactosy1-1,4-N-acety1-beta-D-glucosaminylglycopeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATALYTIC ACTIVITY: UDP-galactose + N-acetyl-D-glucosamine =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: TYPE II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUBUNIT: HOMODIMER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PATHWAY: Glycosylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-acetyllactosamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPPOSING CELLS OR IN THE EXTRACELLULAR MATRIX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LACTOSE SYNTHASE.
                                                                                                                                                                                                                                                              A33396; A33396
MGI:95705; B4ga
                                                                                                                                                                                                                                                                                                                                                                                                                         D00314;
M27922;
M27917;
                                                                                                                                                                                                                                                                                      L16840;
                                                                                                                                                                                                                                                                                                 M36289;
                                                                                                                                                                                                                                           PF02709;
6; Conserv
                                                                                                                                                                                                                                                   IPR003859;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                email to license@isb-sib.ch).
                                              399
                                                                  45
113
Conservative
                                                                                                                                                                                                                             Glycosyltransferase; Glycoprotein;
                                                                                                                                                                                  14
                                                                                                                                                                                                                                                                                                                                                       AAA58744.1;
AAA58744.1;
AAA58744.1;
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                                                                                                                                     14
                                                                                                                                                                                                                                                                                      AAA62340.1;
                                                                                                                                                                                                                                                                                                           AAA58744.1;
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AAA58744.1;
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AAA58745.1;
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113
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                                              44411
                                                                                                    44
                                                                                                                                     14
           12.2%;
100.0%;
                                                                                                                                                                                            stack; Multigene family; Alternative init:
99 BETA-1,4-GALACTOSYLTRANSFERASE 1,
SURFACE FORM.
                                                                                                                                                                                                                                          Galactosyl_T_2.
tosyl_T_2; 1.
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 0;
                                                                                         GOLGI COMPLEX E
CYTOPLASMIC (PO
SIGNAL-ANCHOR (
POTENTIAL)
             Score (
                                                                   LUMENAL, CATALYTIC (POTENTIAL)
N-LINKED (GLCNAC. . .) (POTENT
                                                                                                                                      FOR BETA 1,4-GALACTOSYL-TRANSFERASE
                                                                                                                                                             BETA-1,4-GALACTOSYLTRANSFERASE
                                                                                                                                                                        COMPLEX FORM
                                                                                                                                                                                  BETA-1, 4-GALACTOSYLTRANSFERASE 1,
                                              084E3437115F4BDD CRC64;
 Mismatches
                                                         SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEMBRANE PROTEIN.
                      6;
             NO.
        DB
29;
                                                                                                                (POTENTIAL)
                                                                                                                            FORM
                                                                                                    (TYPE-II
 0
                       Length 399;
                                                                                                                                                                                                                               Transmembrane;
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEMBRANE - BOUND
                                                                                                     MEMBRANE PROTEIN)
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 Gaps
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IRTE_MOUSE
INTE_MOUSE
ID IRTE_MOUSE
IT 01-NOV-1997 (Rel. 35, Last sequence update)
ID IRTE_MOUSE
ID IRTE_MOUSE
IT 01-NOV-1997 (Rel. 35, Last sequence update)
IT 01-NOV-1997 (Rel. 35, Last sequence update)
IT 01-NOV-1997 (Rel. 35, Last sequence update)
IT 15-GUL-1998 (Rel. 35, Last sequence update)
IT 15-GUL
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IRTF_MO
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RY "Structure of mouse interferon stimulated gene factor 3 gamma (ISGF3 RT gamma/p48) cDNA and chromosomal localization of the gene.";

RL J. Biochem. 119:231-234(1996).

CC -!- FUNCTION: RESPONSIBLE FOR THE INITIAL STIMULATION OF INF-ALPHA-CC RESPONSIVE GENES. IT RECOGNIZES MITHIN THE REGULATORY SEQUENCES OF TRESPONSIVE GENES. IT RECOGNIZES HE REGULATORY SEQUENCES OF TARGET GENES. ISGF3 PLAYS A PRIMARY ROLE IN THE TRANSMISSION OF A CONTINUATED STARGET GENES. ISGF3 PLAYS A PRIMARY ROLE IN THE TRANSMISSION OF A CONTINUATED STARGET GENES. ISGF3 PLAYS A PRIMARY ROLE IN THE TRANSMISSION OF A CONTINUATED STARGET GENES. ISGF3 ALPHA (COMPONENTS, A REGULATORY SIGNAL FROM THE CORSISTS OF TWO COMPONENTS, A REGULATORY MULTISUBUNIT COMPLEX, ISGF3 ALPHA (COMPOSED OF STAT1 ALPHA/BETA, AND STAT2, ALSO DESIGNATED P91/P84 AND P113 RESPECTIVELY) AND CONTINUATED ALPHA (COMPOSED OF STAT1 ALPHA/BETA, AND STAT2, ALSO DESIGNATED P91/P84 AND P13 RESPECTIVELY) AND CONTINUATED VIA INF ACTIVATION.

C ISGF3 GAMMA (OR P48). THEY ASSEMBLE WHEN THE ISGF3 ALPHA COMPONENT CONTINUATION: NUCLEAR.

C ISUBCLIQUAR LOCATION: NUCLEAR.

C ISUBCLIQUAR LOCATION: NUCLEAR.

C REGULATORY PHOSPHORYLATED ALPHA AND BETA SUBUNITS ASSEMBLE WITH THE GAMMA SUBUNIT AND TRANSLOCATE FROM THE CYTOPLASM TO THE NUCLEUS.
                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P23906; ZIRF.

MGD: MGT:107587; Isgf3g.

InterPro; IPR001346; IRF.

Pfam; PF00605; IRF; 1.

PRINTS; PR00267; INTERNREGECT.

ProDom; PD003355; IRF; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                PROSITE; PS00601; IRF; 1.
Transcription regulation; DNA-binding; Activator; Nuclear protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A. MEDLINE=97037063; PubMed=8882710;
                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
                                                                                                                                                                                                                                                                                  DNA_BIND
                                                                                                                                                                                                                                                                                                             Interferon induction.
256
                                                  13
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                             PDPLEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    U51992; AAC52494.1; P23906; 2IRF.
                                                                                                                                                                                                                                                                                                                                                                                                SM00348;
                                                                                                           Similarity
6; Conserv
                                                                                                                                                                                                                            399
                                                  18
                                                                                                           Conservative
                                                                                                                                                                                                                                                          165
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                                                                                                                                                                                                                                                                                                                                                                                             IRF;
                                                                                                                                                                                                                                                    170
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                                                                                                                                                                    12.2%;
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                                                                                                           0
                                                                                                                                   Score 6;
Pred. No.
                                                                                                                                                                                                             POLY-GLY.
; 92F9481ACEB669BD
                                                                                                                                                                                                                                                                            TRYPTOPHAN PENTAD REPEAT
                                                                                                           Mismatches
                                                                                                                       DB
29;
                                                                                                                                                              1.
                                                                                                        0,
                                                                                                                                                              Length 399
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RESULT 35
CLPX_ANASP
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                                                                                                                                                                                                                                                                                                                                                                 PURK_CORAM
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Best Local (
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15-DEC-1998 (
15-DEC-1998 (
15-JUN-2002 (
                                                       Q8YQX7;
15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
ATP-dependent Clp protease ATP-binding subunit clpx.
CLPX OR CLPC OR ALR3684.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-ATCC 6872;
MEDLINE-96236888; PubMed-8998996;
Chung S.O., Lee J.H., Lee S.Y., Lee D.S.;
Chung S.O., Lee J.H., Lee S.Y., Lee D.S.;
Genomic organization of purk and pure in Brevibacterium ammoniagenes
ATCC 6872: pure locus provides a clive for genomic evolution.";
FEMS Microbiol. Lett. 137:265-268(1996).
-I- FUNCTION: POSSESSES AN ATPASE ACTIVITY THAT IS DEPENDENT ON THE
PRESENCE OF AIR (AMINOIMIDAZOLE RIBONICLEOTIDE). THE ASSOCIATION
OF PURK AND PURE PRODUCES AN ENZYME COMPLEX CAPABLE OF CONVERTING
AIR TO CALR EFFICIENTLY UNDER PHYSIOLOGICAL CONDITION
(BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                         Interpro; IPR003135; ATP-grasp.
Pfam; PF0222; ATP-grasp; 1.
TIGRFAMs; TIGR01161; purK; 1.
Purine biosynthesis; Lyase; Decarboxylase.
SEQUENCE 413 AA; 44110 MW; F738B230DF5D119A CRC64;
                                          Anabaena sp. (strain PCC Bacteria; Cyanobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -i- CATALYTIC ACTIVITY: 5-amino-1-(5-phospho-D-ribosyl)imidazole-4-carboxylate = 5-amino-1-(5-phospho-D-ribosyl)imidazole + CO(2).
-i- PATHWAY: De novo purine biosynthesis; sixth step.
-i- SUBUNIT: HOMODIMER (BY SIMILARITY).
-i- SIMILARITY: BELONGS TO THE PURK / PURT FAMILY.
SEQUENCE FROM N.A
                          NCBI_TaxID=103690;
                                                                                                                                                                 CLPX_ANASP
                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; X91189; CAA62598.1; -. HSSP; P09029; 1B6R.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Actinobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Corynebacterium ammoniagenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Phosphoribosylaminoimidazole carboxylase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PURK_CORAM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (AIR carboxylase) (AIRC).
                                                                                                                                                                                                                                         132 LGAPVP 137
                                                                                                                                                                                                                                                                       6 LGAPVP 11
                                                                                                                                                                                                                                                                                                   6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OM N.A.
6872;
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(Rel. 37, Last sequence update)
(Rel. 41, Last annotation updat
                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                   12.2%;
                                            Nostocales;
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Actinobacteria (class); Actinobacteridae;
cterineae; Corynebacteriaceae;
                                                                                                                                                                                                                                                                                                     Score 6; DB 1; Pred. No. 30; 0; Mismatches
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                                            Nostocaceae; Nostoc
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Best Local S
Matches 6
                                                                                                                                                                                                                        STRAIN-cv. Landsberg erecta;
MEDLINE-96144274; PubMed-8566777;
MONIAMMAT F., Guilloton M., Karst F., Delrot S.;
"Isolation and characterization of a cDNA encoding Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HMCS_ARATH STANDARD; PRT; 461 AA.

P54873; Q95707;
D1-OCT-1996 (Rel. 34, Created)
D1-OCT-1996 (Rel. 41, Last sequence update)
D1-JUN-2002 (Rel. 41, Last annotation update)
D1-JUN-2002 (Rel. 41, Last annotation update)
Hydroxymethylglutaryl-CoA synthase (EC 4.1.3.5) (HMG-CoA synthase)
(3-hydroxy-3-methylglutaryl coenzyme A synthase).

HMGS OR MVAI OR AT4G11820 OR T26M18.30.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana (Mouse-ear cress).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eueurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SMART; SM00382; AAA; 1.
TIGRFAMS; TIGR00382; clpx;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Yasuda M., Tabata S., "Complete genomic sequence of the 1 Complete genomic sequence of the 1 cyanobacterium Anabaena sp. strain DNA Res. 8:205-213(2001).
                       SEQUENCE FROM N.A. Connolly E.L., Learned R.M.; "Post-transcriptional regulation Arabidopsis thaliana.";
                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AP003593; BAB75383.1; -. InterPro; IPR003593; AAA_ATPase.
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Kishida Y.,
                                                                                                                                                                     thaliana 3-hydroxy-3-methylglutaryl-coenzyme A synthase."; Gene 167:197-201(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pfam; PF00004; AAA; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nakazaki N.,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FUNCTION: ATP-dependent specificity component of the Clp pr It directs the protease to specific substrates. Can perform chaperone functions in the absence of clpP (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QEAYRR 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     T., Nakamura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y., Kohara M., Matsumoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IPR003959; AAA_ATPase_centr
IPR004487; Clpx.
(NOV-1996) to the EMBL/GenBank/DDBJ databases
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445 AA;
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10 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12.2%; Score 6; DB ilarity 100.0%; Pred. No. 32 Conservative 0; Mismatches
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Iriguchi M.,
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., Ishikawa
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Matsumoto M., Matsuno A., Muraki A.,
Sugimoto M., Takazawa M., Yamada M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MW;
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C1E021D7831FDBA2
                                                     of HMG-CoA synthase expression
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n PCC 7120.";
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                                                                                                                                                                                                                                                                                                                                                                                                                                                         eudicots;
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RA MOOLJaan P., Klein Lankhorst R., Rose M., Hauf J., Koetter P.,
RA Berneiser S., Hempel S., Feldpausch M., Lamberth S., Van den Daele H.,
RA De Keyser A., Buysshaert C., Gielen J., Villarroel R., De Clercq R.,
RA Clark L., Doggett J., Hall S., Kay M., Lennard N., McLay K., Mayes R.,
RA Clark L., Doggett J., Hall S., Kay M., Lennard N., McLay K., Mayes R.,
RA Pettett A., Rajandream M.A., Lyne M., Benes V., Rechmann S.,
RA Dose S., de Haan M., Maarse A.C., Schaefer M., Mueller-Auer S.,
RA Gabel C., Fuchs M., Fartmann B., Granderath K., Dauner D., Herzl A.,
RA Gabel C., Fuchs M., Fartmann B., Granderath K., Dauner D., Herzl A.,
RA Gabel C., Quigley F., Clabauld G., Muendlein A., Felber R.,
RA Gabel C., Ouigley F., Clabauld G., Muendlein A., Felber R.,
RA Gibbons T., Weber N., Vandenbol M., Bargues M., Terol J., Torres A.,
RA Gibbons T., Weber N., Vandenbol M., Bargues M., Terol J., Torres A.,
RA Frishman D., Haase D., Lemcke K., Mewes H.-W., Stocker S.,
RA Parnell L., Dedhia N., Gnoj L., Schutz K., Huang E., Spiegel L.,
RA Schnabl S., Beyan M., Wilson R.K., de la Bastide M., Habermann K.,
RA Zaccaria P., Bevan M., Wilson R.K., de la Bastide M., Habermann K.,
RA Schneking T., Kalicki J., Graves T., Harmon G., Edwards J.,
RA Minx P., Bentley D., Fulton B., Miller N., Greco T., Kemp K.,
RA Nelson J., Spieth J., Ryan E., Andrews S., Geisel C., Layman D.,
RA Nelson J., Spieth J., Ryan E., Andrews S., Geisel C., Layman D.,
RA Minx P., Zhong J., Preston R., Vil D., Shekher M., Matero A., Shah R.,
RA Swaby I.K., O'Shauphnessy A., Rodriguez M., Hoffman J., Till S.,
RA Crenter e. Marra M., Martienssen R., McCombie W.R.;
RF Sceutence and analysis of chromosome 4 of the plant Arabidopsis
                 EMBL;
EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                         This
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Pohl T., Duesterhoeft A., Stiekema W., Entian K.-D., Terr
Harris B., Ansorge W., Brandt P., Grivell L.A., Rieger M.,
Weichselgartner M., de Simone V., Obermaier B., Mache R.,
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                                                                                                                                             or send an
                                                                                                                                                                                    the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
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SEQUENCE FROM N.A.
                                                                                                                                                                  entities requires a license agreement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nature 402:769-777(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence and analysis
                                                                                                                                                                                                                                                                                                                                                       CATALYTIC ACTIVITY: (S)-3-hydroxy-3-methylglutaryl-CoA + CoA acetyl-CoA + H(2)O + acetoacetyl-CoA.

PATHWAY: PRODUCTION OF MEVALONATE FROM HMG-COA PRIOR TO THE
                                                                                                                                                                                                                                                                                                                                                                                                                                     FUNCTION: THIS ENZYN
FORM HMG-COA, WHICH
               C; X83882; CAA58763.1; -...; U79160; AAD00297.1; -...; U79161; AAD00298.1; -...; AL078806; CAB44320.1; -...; AL161532; CAB78225.1; -...;
                                                                                                                                                                                                                                                                                                             SYNTHESIS OF STEROLS AND ISOPRENOIDS. SIMILARITY: BELONGS TO THE HMG-COA SYNTHASE FAMILY.
                                                                                                                                                                                                                                                     SWISS-PROT entry is copyright. It is produced through a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hoheisel J., Zimmermann W., Wedler H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Delseny M., Puigdomenech P., Watson M., Schmidtheini
                                                                                                                                             email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                         ENZYME CONDENSES ACETYL-COA WITHICH IS THE SUBSTRATE FOR HMG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              O.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chromosome 4 of the plant Arabidopsis
                                                                                                                                                                                                     of Bioinformatics and the EMBL outst
Institute. There are no restrictions
tions as long as its content is in
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                                                                                                                                                                  http://www.isb-sib.ch/announce/
                                                                                                                                                                                      Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                               HTIW
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A REDUCTASE (BY
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Bancroft I.,
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RESULT 37
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Q8ZCKO;
15-JUN-2002
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ACT_SITE
CONFLICT
                                                 Complete
SITE
                                                                                                                                                                                                                                                                                                                                                                                   Parkhill J. Wren B.W. Thomson N.R., Titball R.W., Holden M.T.G., Parkhill J. Wren B.W. Thomson N.R., Churcher C., Mungall K.L., Prentice M.B., Sebaihia M., James K.D., Churcher C., Mungall K.L., Basham D., Bentley S.D., Brooks K., Cerdeno-Tarraga A.M., Chillingworth T., Cronin A., Davies R.M., Davis P., Dougan G., Feltwell T., Hamlin N., Holroyd S., Jagels K., Karlyshev A.V., Leather S., Moule S., Oyston P.C.F., Quall M., Rutherford K., Simmonds M., Skelton J., Stevens K., Whitehead S., Barrell B.G.; "Genome sequence of Yersinia pestis, the causative agent of plague. Nature 413:523-527(2001).
                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pram; PF(
PROSITE;
                                                                                    PRINTS; PR00987; TRNASYNTHGLU.
TIGRPAMS; TIGR00464; gltx_bact; 1.
PROSITE; PS00178; AA_TRNA_LIGASE_I; 1.
                                                                                                                                           EMBL; AJ414154; CAC92228.1; -.
InterPro; IPR0004527; GltX_bact.
InterPro; IPR000924; Glt_trNA-synt_lc.
InterPro; IPR001412; trNA-synt_I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=CO-92 / Biovar Orientalis;
MEDLINE=21470413; PubMed=11586360;
                    BINDING
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                                                                                                                                                                                                                                   entities requires a license agreement
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CONFLICT
     SEQUENCE
                                                                          Aminoacyl-tRNA synthetase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=632;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yersinia pestis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GLTX OR YPO2984.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutamy1-tRNA synthetase (EC 6.1.1.17) (Glutamate--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (GluRS)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                             diphosphate + L-glutamyl-tRNĀ(Glu).
SUBUNIT: Monomer (By Similarity).
SUBCELLULAR LOCATION: Cytoplasmic.
SIMILARITY: BELONGS TO CLASS-I AMINOACYL-TRNA SYNTHETASE FAMILY.
                                                                                                                                  PF00749; tRNA-synt_lc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PF01154; HMG_COA_synt; 1.
FE; PS01226; HMG_COA_SYNTHASE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sterol biosynthesis.
TE 117 117
                                                                                                                                                                                                                 an email to license@isb-sib.ch).
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471
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342
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342 K
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    "HIGH" REGION.
"KMSKS" REGION.
ATP (BY SIMILARITY).
; 6176293F008B338B CRC64;
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33;
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                                                                          ATP-binding;
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Best Local S
Matches 6
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01-DEC-1992
16-OCT-2001
ZN_FING
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                                                                                                                                                                                          InterPro; IPR001841; Znf_ring.
Pfam; PF00097; zf-C3HC4; 1.
SMART; SM00184; RING; 1.
PROSITE; PS00518; ZF_RING_1; 1.
PROSITE; PS50089; ZF_RING_2; 1.
Transcription regulation; Trans-acting
                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restructed by non-profit institutions as long as its content modified and this statement is not removed. Usage by ancentities requires a license agreement (See http://www.isb-sentities.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barlow P.N., Luisi B., Milner A., Elliott M., Everett R.D.;
"Structure of the CHC4 domain by 1H-nuclear magnetic reson
P. A. Bernstone A. Bernstone B. Bernstone 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.

MEDLINB=92295566; PubMed=1318606;

Telford E.A.R., Watson M.S., McBride K., Dav

"The DNA sequence of equine herpesvirus-1.";

Virology 189:304-316(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRUCTURE BY NMR OF 1-63. MEDLINE=94087718; PubMed=8263911; Everett R.D., Barlow P.N., Milner
                                                                                                                                                                            DNA-binding;
                                                                                                                                                                                                                                                                                                             PDB; 1CHC; 30-APR-94.
                                                                                                                                                                                                                                                                                                                                                        EMBL; M86664; AAB02498.1;
                                                                                                                                                                                                                                                                                                                                                                                           or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE-94172642; PubMed-8126734;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 J. Mol. Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "A novel arrangement of zinc-binding a in the C3HC4 motif of an alpha herpes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Viruses; dsDNA viruses,
Alphaherpesvirinae; Var
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Equine herpesvirus type 1 (strain Ab4p) (EHV-1).
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217 LGAPVP
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Varicellovirus
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RING-TYPE.
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s virus protein
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in family.";
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RESULT 39
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Best Local S
Matches 6
                                                                                                                                                                                                                                             Capela D., Galibert F., Gozzy J.,
Kalman S., Keating D.H., Palm C., Peck M.C., Surzycki R., Wells D.H.,
Yeh K.-C., Davis R.W., Federspiel N.A., Long S.R.,
"Nucleotide sequence and predicted functions of the entire
Sinorhizobium meliloti psyma megaplasmid."
Proc. Natl. Acad. Sci. U.S.A. 98:9883-9888(2001).
-I- FUNCTION: NOT KNOWN; DOES NOT SEEM TO PARTICIPATE IN NOD FACTOR
SYNTHESIS BUT REQUIRED FOR NODULATION ON SOME SPECIFIC MEDICAGO
SPECIES SUCH AS M.LITTORALIS.

SPECIES SUCH AS M.LITTORALIS.
                Plasmid;
TRANSMEM
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STRAND
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                                                                                                   modified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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HELIX
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                                                  EMBL; U26430; AAC44092.1; -
EMBL; AE007232; AAK65075.1;
                                                                                                                                                     the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
                                                                                                                                                                                           between
                                                                                                                                                                                                                                                                                                                                                                                                                   Barnett M.J., Fisher R.F., Jones T., Ko
Barloy-Hubler F., Bowser L., Capela D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN-RCR2011 / SU47;
MEDLINE-96111489; PubMed-8801423;
Ardourel M., Lortet G., Maillet F.,
Prome J.-C., Rosenberg C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group; Rhizobiaceae; Sinorhizobium.
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NOEB OR RA0417 OR SMA0774.
Rhizobium meliloti (Sinorhizobium meliloti).
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30-MAY-2000
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30-MAY-2000 (Rel. 39,
15-JUN-2002 (Rel. 41,
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                                                                                                                                                                                    SWISS-PROT entry is copyright. It is produced through a collaboration en the Swiss Institute of Bioinformatics and the EMBL outstation
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|PVPYPD 487
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                                  Nodulation;
                                                                                                    equires a license agreement (See http://www.isb-sib.ch/announce/email to license@isb-sib.ch).
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                Transmembrane; Complete
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D., Galibert F., Gouz
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RESULT 40
ECHP_CAVPO
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Best Local
                                                                                                                                                            EMBL; X92742;
EMBL; X85112;
HSSP; P14604;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSMEM
TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Caira F., Cherkaoui-Malki M., Hoefler G., Latruffe N.; "Cloning and tissue expression of two cDNAs encoding the 2-encyl-CoA hydratase/3-hydroxyacyl-CoA dehydrogenase in pig liver "; FEBS Lett. 378:57-60(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last sequence update)
Peroxisomal bifunctional enzyme (PBE) (PBFE) [II
hydratise (EC 4.2.1.17); 3,2-trans-enoy1-COA iss
3-hydroxyacy1-COA dehydrogenase (EC 1.1.1.35)].
                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cavia porcellus (Guinea pig).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ECHP
               PROSITE; PS00166; ENOVI_COA_HYDRATASE; 1.
PROSITE; PS00342; MICROBODIES_CTER; 1.
Fatty acid metabolism; Multifunctional enzyme;
                                                                                                                                                                                                                          entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P55100;
                                                                                                          Pfam;
                                                                                                                         InterPro; IPR002135; 3HCDH
InterPro; IPR001753; EnCoA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- PATHWAY: CATALYZES THREE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=96140708; PubMed=8549802;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=10141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88 LADHIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             32 LADHIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S Lett. 378:57-60(1996).
CATALYTIC ACTIVITY: (3S)-3-hydroxyacyl-CoA - CoA + H(2)0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATALYTIC ACTIVITY: 3-cis-dodecenoyl-CoA =
                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: IN THE N-TERMINAL SECTION; HYDRATASE/ISOMERASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBUNIT: MONOMER (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATALYTIC ACTIVITY: (S)-3-hydroxyacyl-CoA + NAD(+) = 3-oxoacyl-CoA
                                                                                                                                                                                                                                                                                                                                                                                                    SIMILARITY: IN THE C-TERMINAL SECTION; BELONGS TO THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUBCELLULAR LOCATION: Peroxisomal.
                                                                                                                                                                                                                                                                                                                                                                                 HYDROXYACYL-COA DEHYDROGENASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CYCLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      + NADH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAVPO
                                                                    PF00378; ECH; 1.
PF00725; 3HCDH; 2.
PF02737; 3HCDH_N;
isomerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 6; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    65
99
122
149
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                                                                                                                                                            CAA63403.1; -. CAA59431.1; -. 2DUB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
Peroxisome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85
119
142
169
60732
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POTENTIAL.
1296A8D0222995F4 CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STEPS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
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o. 39;
                                                                                                                                                                                                                                                                                                                There
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                                                                                                                                                                                                                                                                                           ere are no restrictions as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                          BELONGS
                                                                                                                                                                                                                                                                        Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     isomerase (EC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 553
                   Oxidoreductase; NAD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2-trans-dodecenoyl-CoA.
ACID BETA-OXIDATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        trans-2(or 3)-enoy1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                          TO THE ENOYL-COA
                                                                                                                                                                                                                                                                            Ьy
                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enoyl-CoA
(EC 5.3.3.8);
                                                                                                                                                                                                                                                                                                                             EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             peroxisomal
the guinea
                                                                                                                                                                                                                                                                                                                               a collaboration • MBL outstation •
                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           guinea
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Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                             Bos taurus (Bovine).
Eukaryota; Metazoa; C
Mammaila; Eutheria; C
Bovidae; Bovinae; Bos
NCBI_TaxID=9913;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INIT_MET
DOMAIN
DOMAIN
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                               DPP4_BOVIN STANDARD; PRT; 765 AA.
P81425; Q8WWG8;
15-DEC-1998 (Rel. 37, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Dipeptidyl peptidase IV (EC 3.4.14.5) (DPP IV)
antigen CD26) (Adenosine deaminase complexing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BOVIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SITE
                                         Comp.
                                                                  TISSUE-Kidney;
MEDLLNE-9829306; PubMed-9629661;
Ben-Shooshan I., Parola A.H.;
The CP-I subunit of adenosine deaminase
                                                                                                                                                                                                                                                                                                                                                        TISSUE-Lymphocytes;
PubMed-12073152;
    -
                                                                                                                                                  Lee S.-U., Ferens W., Da
Naessens J., Bohach G.A.
"Identity of activation
cells is CD26.";
                                                                                                                                                                                                                              Eur. J. Immunol.
                                                                                                                                                                                                                                        vivo.
                                                                                                                                                                                                                                                            Gliddon D.R.,
                                                                                                                                                                                                                                                                                                                    "Molecular characterization of bovine staphylococcal superantigen.";
                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                DPP4 OR CD26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                        PubMed-11598101;
                                                                                                                                                                                                           SEQUENCE OF 1-24.
                                                                                                                                                                                                                                                 "CD26
                                                                                                                                                                                                                                                                    PubMed=11981836;
                                                                                                                                                                                                                                                                             TISSUE-Thymus
                                                                                                                                                                                                                                                                                                                                      Bohach G.A.;
                                                                                                                     SEQUENCE OF 537-546
                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.,
                                                                                                                                                                                                                                                                                                                                                Lee S.-U.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Activation molecule
                                                                                                                                                                                                                                                                                                           mmunogenetics
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         POLYMETION: Removes N-terminal polypeptides having unsubstit penultimate residue is prolinof ADA.
   CATALYTIC
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6; Conserv
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725
                                                                                                                                                                                                                                                                                                                                               Park Y.-H.,
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1
284
105
125
   ACTIVITY:
                                                                                                                                                                                                                                                          Howard C.J.;
                                                                                                                                                                                                                                                                                                         superantigen.";
54:216-220(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ¥
                                                                                                                                       69:7190-7193(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
283
574
105
125
725
727
                                                                                                                                                                                                                              32:1472-1481(2002)
                                                                                                                                                                                                                                                                                                                                                                                                           Bos.
                                                                                                                                                                                                                                                on a restricted subpopulation
                                                                                                                                                                                                                                                                                       AND
                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata; Craniata; Vertebrata; Eutel Cetartiodactyla; Ruminantia; Pecora;
                                                                                                                                                                                                                                                                                                                                                                                                                             Chordata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ACT3) (WC10).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12.2%;
100.0%
                                                                                                                                                                    Davis W.C., Hamilton M.J., Park Y.-H., .A.;
                                                                                                                                                                                                                                                                                                                                                Davis W.C.,
                  -terminal dipeptides sequentially unsubstituted N-termini provided is proline. Binds and regulates t
                                                                                                                                                                                                                                                                                      SEQUENCE
  Release of
                                                  1198:289-292(1998):
                                                                                                                                                            molecule 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BY SIMILARITY.

ENOYL-COA HYDRATASE / ISOMERASE.

3-HYDROXYACYL-COA DEHYDROGENASE.

BASE (BY SIMILARITY).

ACID (BY SIMILARITY).

MICROBODY TARGETING SIGNAL (POTEN'
MM; 645FC94CAF314E17 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                       OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . No.
  an
                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                               Hamilton M.J.,
                                                                                                                                                                                                                                                                                       1-17
N-terminal dipeptide, Xaa-Xbb-[-
                                                                                                                                                                                                                                                                                                                             CD26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
50;
                                                                                                                                                           superantigen-stimulated
                                                                   complexing protein from rat dipeptidyl peptidase
                                                                                                                                                                                                                                                                                                                            upregulated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IV) (T-cell
ing protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
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                                                                                                                                                                                                                                                of.
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                                                                                                                                                                                                                                                                                                                                                Naessens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                   Euteleostomi;
cora; Bovoidea
                                                                                                                                                                                                                                                dendritic
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                 activation (ADCP-I)
                    the activity
                              from
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                                                                                                                                                                             Fox L.K.
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                                                                                                                                                            bovine
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GR DOT DAC

Hypothetical TRS1.

(Rel. 10, Created)
(Rel. 10, Last sequence update)
(Rel. 29, Last annotation update)
1 protein HHLF1.

STANDARD;

PRT;

788

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TRS1_HCMVA
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                                                                                                                      QΥ
                                                                   RESULT
                                                                                                                                            Query Match
Best Local S
Matches
TRS1_HCMVA
P09695;
01-MAR-1989
01-JUN-1994
                                                                                                                                                                                                                                             CARBOHYD
CARBOHYD
CARBOHYD
CARBOHYD
                                                                                                                                                                                        CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                         CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                        ACT_SITE
ACT_SITE
ACT_SITE
                                                                                                                                                                                                                                                                                                                                              DOMAIN
ACT_SIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002469; DPPIV_N_term.
InterPro; IPR001375; Peptidase_S9.
InterPro; IPR002471; Prol_endopep_ser.
InterPro; IPR002471; Prol_endopep_ser.
InterPro; IPR002379; Ser_estrs_site.
Pfam; PF00930; DPPIV_N_term; 1.
Pfam; PF00936; Peptidase_S9; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL;
                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                               CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                   CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                          DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                               Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PROSITE; PS00708; PRO_ENDOPEP_SER;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEROPS; S09.003;
                                                                                                   446 CELNPD
                                                                   42
                                                                                                                        23 CELNPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a soluble form (By similarity).

TISSUE SPECIFICITY: Intestinal epithelium, d
several immune system tissues.

Several immune system tissues from th
PTM: The soluble form (SDPP) derives from th
by proteolytic processing (By similarity).

SIMILARITY: BELONGS TO PEPTIDASE FAMILY S9B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBURIT: Homodimer.
SUBCELLULAR LOCATION: Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Xcc, from a polypeptide, preferentially when Xcc is neither Pro nor hydroxyproline.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AF461806; AAL67836.1;
AY056834; AAL23628.1;
                                                                                                                                           Similarity
6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                    Aminopeptidase; Dipeptidase; Se ane; Glycoprotein; Signal-anchor 1 765 DIPEPTIDYL PE
                                                                                                    451
                                                                                                                                              Conservative
                                                                                                                                                                                        495
684
765
                                                                                                                                                                                                                       30
629
707
739
84
91
149
1149
228
228
228
271
280
320
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CHARGE RELAY SYSTEM (BY SI
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Perna N.T., Plunkett G. III, Burland V., Mau B., Glasner J.D., Rose D.J., Mayhew G.F., Evans P.S., Gregor J., Kirkpatrick H.A., Posfai G., Hackett J., Klink S., Boutin A., Shao Y., Miller L., Grotbeck E.J., Davis N.W., Lim A., Dimalanta E.T., Potamousis K. Apodaca J., Anantharaman T.S., Lin J., Yen G., Schwartz D.C.,
                                                                                                                                                    16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Glycerol-3-phosphate acyltransferase (EC 2.
PLSB OR Z5640 OR ECS5024.
Escherichia coli 0157:H7.
                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entre European Bioinformatics Institute. There are no restricted the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Chee M.S., Bankier A.T., Beck S., Bohni R., Brown Horsnell T., Hutchison C.A. III, Kouzarides T., Mt preddie E., Satchwell S.C., Tomlinson P., Weston I. "Analysis of the protein coding content of the sectytomegalovirus strain ADI69.";
Curr. Top. Microbiol. Immunol. 154:125-169(1990).
                                                                                                                                         Escherichia coli 0157:H7. Bacteria; Proteobacteria;
                                                               STRAIN=0157:H7 / EDL933 / ATCC 700927; MEDLINE=21074935; PubMed=11206551;
                                                                                        SEQUENCE FROM N.A.
                                                                                                                               Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hypothetical CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; X17403; CAA35269.1; -. EMBL; X04650; CAB37121.1; -.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          modified and this statement is not removed. entities requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     use
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Sequence of the short unique region, long repeats of human cytomegalovirus J. Mol. Biol. 192:177-208(1986).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human cytomegalovirus (strain AD169).
                                                                                                                  NCBI_TaxID=83334;
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PF02393; US22; 1.
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larity 100.0%;
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T., Martignetti J
eston K.M., Barrel
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15-DEC-1998 (Rel. 37, I
16-OCT-2001 (Rel. 40, I
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INIT_MET
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                                                                                                                                                          "The DNA
                                   STRAIN=K12 / MG1655;
MEDLINE=94089392; PubMe
Blattner F.R., Burland
                                                                                                                                       "The DNA
J. Biol.
                                                                                                                                                                                           SEQUENCE FROM N.A.
MEDLINE-83291031; PubMed-6309817;
                                                                                                                                                                                                                                                                                                                    Escherichia coli.
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EMBL; AP002568; BAB38447.1; ALT_INIT.
InterPro; IPR002123; Acyltransferase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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                    Daniels
                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                 Escherichia
                                                                                                                                                                                                                                                                                                Bacteria; Proteobacteria;
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"Genome sequence of enterohaemorrhagic Escherichia coli 0157:H7.";
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CATALYTIC ACTIVITY: Acyl-CoA +
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                    D.L.;
                                                                                                                                     V.A., Bell R.M., Modrich P.; sequences encoding plsB and dgk loci Chem. 258:10856-10861(1983).
                                                                                                  FROM
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M., Shinagawa H.;
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B07F39B876F5E5D6 CRC64;
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Analysis

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analysis of Escherichia coli sn-glycerol-3-phosphate
acyltransferase.";
J. Biol. Chem. 258:10862-10866(1983).
-!- CATALYTIC ACTIVITY: Acyl-CoA + sn-glycerol 3-phosphate
                                                                                                                                                                                                                                             EcoGene; EG10740; plsB.
InterPro; IPR002123; Acyltransferase.
Pfam; PF01553; Acyltransferase; 1.
Phospholipid biosynthesis; Transferase;
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"Cloning and sequencing of Escherichia
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"A missense mutation accounts for the defect in the glycerol-3-nhosnhare acvitransferase expressed in the plsB26 mutant.";
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R; A00565; XUECAG.

R; C42956; C42956.
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PATHWAY: DE NOVO PHOSPHOLIPID BIOSYNTHESIS; FIRST FUNCTION IN THE REGULATION OF MEMBRANE BIOGENESIS.
SUBCELLULAR LOCATION: Membrane-bound.
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                                                                       PDPLEP
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U00006; AAC43135.1; ALT_INIT.

AE000477; AAC77011.1; ALT_INIT.

AF106625; AAD20588.1; -.
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21:5408-5417(1993).
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                                                                                                                                                                                                                                                                                                     use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Complete genome sequence of a enterica serovar Typhi CT18.";
Nature 413:848-852(2001).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -!- CATALYTIC ACTIVITY: Acyl-CoA + sn-glycerol 3-phosp
acyl-sn-glycerol 3-phosphate.
-!- PATHANY: DE NOVO PHOSPHOLIPID BIOSYNTHESIS; FIRST
FUNCTION IN THE REGULATION OF MEMBRANE BIOGENESIS
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15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
                                                                                                                                                                                                                         Pfam; PF01553; Acyltransferase; 1. Phospholipid biosynthesis; Transferase;
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-!- SIMILARITY: BELONGS TO THE GPAT / DAPAT FAMILY.
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SUMMARIES

Q92553 mus musculu Q92552 mus musculu Q92562 mus musculu Q84790 oryza sativ Q93nw6 streptomyce Q93nw6 streptomyce Q8x7e7 escherichia Q18313 caenorhabdi Q43413 homo sapien Q9uq26 homo sapien Q9uq26 homo sapien Q9um9 rhizobium m Q8vvh2 mesorhizobi Q9f3w3 pseudomonas Q8zsn7 pyrobaculum	Q925S3 Q925S2 Q927F0 Q8RYXF0 Q8RYXF0 Q93NW6 Q8X7E7 Q18313 Q43413 Q43413 Q91026 Q91UM9 Q8UVH2 Q8F3W3 Q9F3W3 Q9F3W3	111 111 111 110 111 111 111 111 111 111	147 170 298 441 10917 677 706 369 1188 1188 1196 1196	25.7 25.7 25.7 25.7 21.9 21.9 21.5 21.5 21.3 21.3	58.55 57.58 57.58 57.58	100 100 100 100 100 100 100 100 100 100
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ALIGNMENTS

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8 APVPYPDPLXPRRXVCXLNPDCDELADHIGFQEA 41	Query Match 61.4%; Score 167; DB 6; Length 34; Best Local Similarity 85.3%; Pred. No. 6.7e-16; Matches 29; Conservative 2; Mismatches 3; Indels 0; Gaps	SEQUENCE 34 AA; 3807 MW; 3F323F8D6FDC65D8 CRC64;	NON_TER 34 34	NON_TER 1 1	SMART; SM00069; GLA; 1.	PRINTS: PRO0002: GLABONE.	Pfam: PF00594: gla: 1.	100000004;	EMBL; AF205942; AAF18456.1;	Submitted (NOV-1999) to the EMBL/GenBank/DDBJ databases.	"Canine Osteoblast Gene Expression.";	Wezeman F.H., Moskal S.F. II.;	STRAIN=BREED BEAGLE;	SEQUENCE FROM N.A.	[1]	•	Carnivora; Fissipedia; Canidae;	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	Canis familiaris (Dog).			(TrEMBLrel. 17, Last	(TrEMBLrel. 13,	01-MAY-2000 (TrEMBLrel. 13, Created)	~	Q9TT28 PRELIMINARY; PRT; 34 AA.	T28	ULT 1
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01-DEC-2001 (TrembLrel. ]
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Acanthomorpha; Acanthopterygii; Teleostei; Eutei
Acanthomorpha; Acanthopterygii; Percomorpha;
Sparidae; Sparus.
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01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation updat)
Similar to bone gamma-carboxyglutamate protein, r
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InterPro; IPR000294; VitK_dep_GLA.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; 91a; 1.
PRINTS; PR000002; GLABONE.
SMART; SM000069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Rodentia;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=21297182; Pubmeu-Livers (Cancela M.L.; Pinto J.P., Ohresser M.C.P., Cancela M.L.; Pointo J.P., Ohresser M.C.P., Cancela M.L.; Pointo J.P., Ohresser M.C.P., Cancela M.L.; Pinto J.P., Cancela M.
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Pfam; PF00594; 91a; 1.
PR0STTE; PS000011; GLU_CARBOXXLATION;
SEQUENCE 97 AA; 10434 MW; B95608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bone-specific expression from 1 gene 270:77-91(2001). EMBL; AF048703; AAK66568.1; -. EMBL; AF289506; AAK62679.1; -.
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Sparus aurata (Gilthead sea bream).
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MEDLINE=21297182; PubMed=11404005;
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Euteleostei; Neoteleostei;
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SEQUENCE 147 AA; 16274 MW;
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Q925S3;
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     Cui D., Zeng G., Yan x., "Cloning of mouse genes of the irradiated mice b the same strain.";
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Mammalia; Eutheria;
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the repair of
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STRAIN=BALB/C;
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the repair of intestinal epithelium after
World J. Gastroenterol. 6:709-717(2000).
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Mammalia; E
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Matches
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Best Local
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Q1-JUN-2002 (Trej
Q1-JUN-2002 (Trej
Q1-JUN-2002 (Trej
Q5JNBAQ066C06.7 (
Q5JNBAQ066C06.7 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
STRAIN-BALB/C; TISSUE-SPLEEN;
MEDLINE-20183931; PubMed-10706631;
Shinohara N., Demura T., Fukuda H.;
Shinohara N. Demura T. Fukuda H.;
"Isolation of a vascular cell wall-specific monoclonal antibody a vascular cell wall-specific monoclonal antibody subtraction."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9QYF0
Q9QYF0;
Q1-MAY-2000
Q1-MAY-2000
Q1-DEC-2001
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                                                    Oryza sativa (japonica cultivar-group).
Eukaryota; Viridiplantae; Streptophyta; Es
Spermatophyta; Magnoliophyta; Liliopsida;
Ehrhartoideae; Oryzeae; Oryza.
NCBI_TaxID-39947;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL;
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Eukaryota; Metazoa;
Mammalia; Eutheria;
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SMART; SM00408; IGC2; 1.
    STRAIN=CV.
                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                          Q8RYX0
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InterPro; IPR003598;
InterPro; IPR003006;
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SEQUENCE 170 AA; 17978
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P01607; 1REI.
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12; Conservative
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12; Conserv
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Metazoa; Chordata; C
Metazoa; Rodentia; /
    NIPPONBARE
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BAA88633.1; -
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: Ig_MHC.
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92.3%;
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92.3%;
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Pred. No. 0.088;
0; Mismatches
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Pred. No. 0.
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                                                                                                                                                                                                                                                                          PRT;
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                                                                                              Embryophyta; Trach
a; Poales; Poaceae;
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Murinae; Mus
                                                                                                                Tracheophyta;
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Pfam; PF00109; Actocyl-synt; 6.

Pfam; PF00109; ketoacyl-synt_C; 6.

Pfam; PF02801; ketoacyl-synt_C; 6.

Pfam; PF02801; ketoacyl-synt_C; 6.

Pfam; PF02801; ketoacyl-synt_C; 6.

PF031TE; PF00550; pp-binding; 6.

PROSITE; PS0059; ADH_ZINC; UNKNOWN_1.

PROSITE; PS0059; ADH_ZINC; UNKNOWN_1.

PROSITE; PS00606; B_KETOACYL_SYNTHASE; UNKNOWN_5.

PROSITE; PS00012; PHOSPHOPANTETHEINE; UNKNOWN_5.
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01-DEC-2001
01-DEC-2001
01-JUN-2002
01-MAR-2002 (TrEMBLrel. 20, 01-MAR-2002 (TrEMBLrel. 20, 01-JUN-2002 (TrEMBLrel. 21, Methionine tRNA synthetase. METG OR Z3282 OR ECS2920.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Oryza sativa nipponbare(GA3) genomic DNA, chr
clone:OSJNBA006CO6.";
Submitted (JUL-2001) to the EMBL/GenBank/DDBJ
EMBL; AP003933; BAB90635.1;
                                                                                                                                                                                                                                                                                                                                                                                                        Phosphopantetheine SEQUENCE 10917 AJ
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InterPro; IPR003880; Ppantne_attach.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Submitted (MAR-2001) to the EMBL; AF357202; AAK73514.1; InterPro; IPR001227; AC_tran
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NCBI_TaxID=40318;
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InterPro; IPR004410;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR002328;
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17; Conserv
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14; Conservative
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47810 MW;
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Pred. No. 33;
5; Mismatches
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4; Mis
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cluster
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Streptomyces
                                                                                                                                                                                                                                                                                                                                                              Length 10917;
                                                                                                                                                                                                                                                                                                                         Indels
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RESULT 10
Q18313
ID Q18313
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Best Loc
Matches
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O157:H7 and genomic comparison with a laboratory strain K.

DNA Res. 8:11-22(2001);
R EMBL: AE005437; AAG57175.1; -.

REINEL: AE005437; AAG57175.1; -.

REINEL: AE002560; BAB36343.1; -.

REINEL: AE0002560; BAB36343.1; -.

REINEL: AE0002560; LARASYNTLIA.

InterPro; IPR001300; tRNA-synt_1a.

InterPro; IPR001300; tRNA-synt_1.

InterPro; IPR001312; tRNA-synt_1.

InterPro; IPR002304; tRNA-synt_1.

REINTERPRO; IPR002547; tRNA_bind.

RP FAMM; PF00133; tRNA-synt_1; 1.

RPAINTS; PR01041; TRNASYNTHMET.

REINTERPAMS; TIGR00398; metG; 1.

REPRINTS; PR01041; TRNASYNTHMET.

REPROSITE; PS00178; AA TRNAS_ITGASE_I; 1.

REPROSITE; PS00178; AA TRNAS_ITGASE_I; 1.

SEQUENCE 677 AA; 76254 MW; D8AF4076AFE04FCA CRC64;
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MEDLINE=21074935; PubMed=11206551;

Perna N.T., Plunkett G. III, Burland V., Mau B., Glasner J.D.,

ROSE D.J., Mayhew G.F., Evans P.S., Gregor J., Kirkpatrick H.A.,

Posfai G., Hackett J., Klink S., Boutin A., Shao Y., Miller L.,

Grotbeck E.J., Davis N.W., Lim A., Dimalanta E.T., Potamousis K.,

Apodaca J., Anantharaman T.S., Lin J., Yen G., Schwartz D.C.,

Welch R.A., Blattner F.R.;

"Genome sequence of enterohaemorrhagic Escherichia coli 0157:H7."

Nature 409:529-533(2001).
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SEQUENCE FROM N.A.

STRAIN=0157:H7 / RIMD 0509952;

MEDILINE=21156231; PubMed=11258796;

MEDILINE=1156231; PubMed=11258796;

Hayashi T., Makino K., Ohnishi M., Kurokawa K., Ishii K., Yokoyam Hayashi T., Makino K., Ohnishi M., Murata T., Tanaka M., Tobe T. Ida T., Takami H., Honda T., Sasakawa C., Ogasawara N., Yasunag:

Kuhara S., Shiba T., Hattori M., Shinagawa H.;

Kuhara S., Shiba T., Hattori M., Shinagawa H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1996
01-NOV-1996
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q18313
Q18313;
                                                                                                                                                            SEQUENCE FROM N.A. STRAIN-BRISTOL N2; MEDLINE-99069613;
                                                                                                                                                                                                                                                                                                                     Caenorhabditis elegans.
Eukaryota; Metazoa; Nematu
Rhabditidae; Peloderinae;
NCBI_TaxID=6239;
"Genome sequence of the nema investigating biology. The C Science 282:2012-2018(1998).
                                                                                                                               None;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              C29H12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hypothetical
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Escherichia
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nes 12; Conserv
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(TrEMBLrel.)
(TrEMBLrel.)
1 82.6 kDa pro
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                                                                                  of the nematode C.
                                                                                                                                                                PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                            Nematoda;
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Caenorhabditis.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; Score 59.5; D; Pred. No. 11; 7; Mismatches
                                     c.
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Last sequence up
                                     elegans
                                     elegans: a platform for ns Sequencing Consortium
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                                             Consortium.
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RESULT
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Best Local s
Matches 9
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043413;
01-JUN-1998;
01-JUN-1998;
01-DEC-2001;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Favello A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROSITE; PS00598; CHROMO_1; 1.
PROSITE; PS500113; CHROMO_2; 1.
PROSITE; PS50011; PROTEIN_KINASE_DOM; 1.
ATP-Dinding; Hypothetical protein; Nuclear protein; Trisepolic 706 AA; 82646 MW; 74E3EF3E109EAFFC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Direct Submission.";
Submitted (SEP-2001) to the EMBL/GenBank/DDBJ databases
-:- SUBCELLULAR LOCATION: NUCLEAR (BY SIMILARITY).
-:- SIMILARITY: CONTAINS 1 'CHROMO' DOMAIN.
EMBL; U23169; AAC46697.1; -.
Interpro; IPR000953; Chromo.
Interpro; IPR000719; Euk_pkinase.
Pfam; PF001885; chromo; 1.
ProDom; PD000001; Euk_pkinase; 1.
SMART; SM00298; CHROMO; 1.
            PRINTS;
SMART; S
                             InterPro; IPR000008; C2.
InterPro; IPR001478; PDZ.
InterPro; IPR001565; Synaptotagmin
Pfam; PF00168; C2; 1.
Pfam; PF00595; PDZ; 1.
                                                                                                                                                                                                         Andersson B., Wentl
"A 'double adaptor'
construction.";
                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                Genome Res. 7:353-358(1997).
EMBL; AF007156; AAC19157.1; -.
                                                                                                                                                                                                                                                                                                                             01-JUN-1998 (TrEMBLrel. 06, C)
01-JUN-1998 (TrEMBLrel. 06, La
01-DEC-2001 (TrEMBLrel. 19, La
Hypothetical 41.8 Ma protein
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SEQUENCE FROM
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                                                                                     HSSP; P21707;
                                                                                                                     Yu W., Andersson B., Worley K.C., Muzny D.M., Div
Ricafrente J.Y., Wentland M.A., Lennon G., Gibbs
"Large-scale_concatenation cDNA sequencing.";
                                                                                                                                                     MEDLINE=97264341; PubMed=9110174;
                                                                                                                                                                 TISSUE=BRAIN;
                                                                                                                                                                                                                                            MEDLINE=96207227;
                                                                                                                                                                                                                                                         TISSUE-BRAIN;
                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                      NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                          11
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                                                                                                                                                                                                   Biochem.
; PR00399; SYNAPTOTAGMN SM00239; C2; 1. SM00228; PDZ; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 45. 9; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                           N.A.
                                                                                                                                                                                                                     227; PubMed=8619474;
Wentland M.A., Ricafrente
aptor' method for improved
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Primates; Catarrhini;
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45.0%;
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Last annotation updat
in (Fragment).
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bbs R.
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RESULT
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Best Local
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Pfam; PF00595; PDZ; 1.
SMART; SM00239; C2; 2.
SMART; SM00228; PDZ; 1.
PROSITE; PS50004; C2_DOMAIN_2; 2
PROSITE; PS50106; PDZ; 1.
                                                                                                                                       Q91UM9;
01-DEC-2001
01-DEC-2001
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The complete sequences of 100 new cDNA clones from brain which co for large proteins in vitro.";
DNA Res. 5:277-286(1998).
EMBL; AB018294; BAA34471.1; -.
HSSP; P21707; 1BYN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9UQ26;
Q9UQ26;
01-MAY-2000
                                     Rhizobium meliloti (Sinorhizobium meliloti).
Plasmid pSB102.
Bacteria; Proteobacteria; alpha subdivision;
                                                                                                Tnim protein.
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Kotani H., Nomura N., Ohara
"Prediction of the coding se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE-99087487; PubMed-9872452; Nagase T., Ishikawa K., Suyama M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-2000 (TrEMBLrel. 13, 01-MAY-2000 (TrEMBLrel. 13, 01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                         Q91UM9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000008; C2.
InterPro; IPR001478; PDZ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KIAA0751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KIAA0751 protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hypothetical protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS50004; C2_DOMAIN_2; PROSITE; PS50106; PDZ; 1.
                      Rhizobiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                           716
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12
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                                                                                                                                                                                                                                                                                                                                                               PVPYPDPLXPRRXVCXLNP---
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                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel. 19, (TrEMBLrel. 19, 2) (TrEMBLrel. 21,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1188 AA;
                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
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                Sinorhizobium
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Last sequence update)
Last annotation update)
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Pred. No. 27;
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Last annotation update)
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Pred. No. 7
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Catarrhini;
                                                                                                                                                                                                                         PRT;
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                                       subdivision; Rhizobiaceae
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                                                                      01-MAR-2001
01-MAR-2001
01-MAR-2001
                                                                                                                                                                                                                                                              STRAIN-ORS1096;
Ba S., Willems A., Lorquin J., Roche P., de Lajudie P., Neyra M.,
Moulin L., Gillis M., Dreyfus B., Boivin-Masson C.;
"Symbiotic and taxonomic diversity of Acacia tortilis rhizobia.";
Submitted (NOV-2000) to the EMBL/GenBank/DDBJ databases.
EMBL; AJ302678; CAC80541.1;
InterPro; IPR003484; NodA.
PROSITE; PS01349; NODA; UNKNOWN_1.
                                                                                                                 Q9F3W3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "The genetic organization and evolution of mercury resistance plasmid pSB102 isolated residing in the rhizosphere of alfalfa.";
                                                                                                                                                                                                                                                                                                                                                                                 Mesorhizobium plurifarium.

Bacteria; Proteobacteria; alpha subdivision;
Phyllobacteriaceae; Mesorhizobium.

NCBI_TaxID=69974;
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01-MAR-2002 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
SEQUENCE FROM N.A.
                  NCBI_TaxID-83781;
                            Pseudomonas sp. ED23-33.
Bacteria; Proteobacteria
                                                            Urf2 protein.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8VVH2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (DEC-2000) to the EMBL/GenBank/DDBJ databases EMBL; AJ304453; CAC79208.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Selbitschka W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Schneiker S., Keller M., Droege M., Lanka
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pfam; PF00563; EAL;
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                                                                                                                                                                     16 ELSDHVELAEFFRRTYGP
                                                                                                                                                                                  31 ELADHIGFQEAYRRFYGP
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10; Conserv
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15; Conservative
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L (TrEMBLrel.
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NODA; UNKNOWN_1.
.; 21708 MW; 9BAB7032FAB1EEC0 CRC64;
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Pred. No. 4.
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Maximum Match 100%
Listing first 45 summaries
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272
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OSTC_HUMAN
OSTC_HORSE
OSTC_BOVIN
OSTC_EANFA
OSTC_RAT
OSTC_DRONO
OSTC_CHICK
OSTC_YENLA
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P02820 bós taurus
P81455 canis famil
P02821 felis silve
P04640 rattus norv
P39056 oryctolagus
P15504 dromaius no
P02822 gallus gall
P40147 xenopus lae
P04641 mus musculu
P54615 mus musculu
P54615 mus musculu
P62823 xiphias gla
P40148 sparus aura
P28317 lepomis mac
C014405 trichoderma
P628317 lepomis mac
P728317 lepomis mac
P728317 lepomis mac
P7405 gallus gall
P7236 gallus gall
P7236 gallus gall
P7236 gallus gall
P7236 panagreilus
P746300 solanum tub
P56620 galeorhinus
P74735 panacillus su
P74736 panacilus su
P74736 panacillus s
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RESULT 1 OSTC_HUMAN		45	44	43	42	41	40	39	38	37	36	35	34	
LHUMAN OSTO-BUMAN		50.5	51	51	51	52	52	52	52	53	53	53.5	54	
ST A		18.6	18.8	18.8	18.8	19.1	19.1	19.1	19:1	19.5	19.5	19.7	19.9	
STANDARD:		361	503	210	196	422	390	352	111	726	291	486	2326	
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PRT.	ALIGNMENTS	PAX1_HUMAN	CP3P_MOUSE	NODA_BRAJA	NODA_RHISP	KC11_HUMAN	KC11_RAT	SMP_SERMA	FREA_MOUSE	RNR_MYCPN	US02_HSV2F	ENV_HTLV2	PGG2_RAT	
100 AA	ENTS	Z	Ä	Ā	ž	Z			ři	~	Ξ			
•		P15863 homo sapien	009158 mus musculu	Q9amz0 bradyrhizob	P50349 rhizobium s	Q9hcp0 homo sapien	Q62761 rattus norv	Q06517 serratia ma	Q61574 mus musculu	P75529 mycoplasma	P13292 herpes simp	P03383 human t-cel	Q00657 rattus norv	

RESULT 1	RESULT 1
(# S	OSTE-HUMAN STANDARD; PRT; 100 AA.
를 A	PU2818; 21-JUL-1986 (Rel. 01, Created)
ဌ	(Rel. 15,
ב ב	Osteoralicin precursor (Gamma-Carboxvolutamic acid-containing protein)
E	rotein) (BGP).
GN	BGLAP.
20 20	Grand State Workshop to
38	Chordata; Craniata; Vertebrata; E
2 2	Manumatta; Euchetta; Fiimaces; Cacainnin; nominidae; nomo: NCBI TaxID=9606;
RN S	[1]
RP	SEQUENCE FROM N.A.
RX	MEDLINE=90245603; PubMed=2336375;
RA	r D.M., Barr P.J.;
RT	derived amino acid sequences of
RT	'
42	NUCLEIC ACIDS RES. 18:1909-1909(1990).
RP	SEQUENCE FROM N.A.
RX	
RA	Vang E.A., Wozney J.M.;
곱 2	rat cDNA clones.";
RL	EMBO J. 5:1885-1890(1986).
B R	[3]
RX :	MEDLINE-81006914; PubMed-6967872;
RA	Poser J.W., Esch F.S., Ling N.C., Price P.A.;
RT	n K-dependent protein :
목곱	bone. Undercarboxylation of the first glutamic acid residue.";
3 8	- 1- FINATION - CONSTITUTES 1-29 OF THE TOTAL BONE PROTEIN IT BINDS
88	STRONGLY TO APATITE AND CALCIUM.
S	-!- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN K
S	DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FOR THE
CC	BINDING OF CALCIUM.
88	-!- SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
38	LY.
3 8	SWISS-PROT entry is copyright. It is
င္ပ	between the Swiss Institute of Bioinformatics and the EMBL outstation -
င္ပ	Bioinformatics Institute. There are no res
გ	as its
38	tatement
3 6	entities reduties a ficense agreement (see nith://www.rsp.sib.ch/announce/ or send an email to license agreement (see nith://www.rsp.sib.ch/announce/
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EMBL; X53698; CAA37736.1; EMBL; X51699; CAA35996.1; EMBL; X04143; CAA27763.1; PIR; A03301; GEHU.
PIR; C25471; C25471.

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Best Local
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                                                                                                                                                                            MEDLINE-82182842; PubMed-6978733;
Hauschka P.V., Carr S.A., Biemann K.;
"Primary structure of monkey osteocalcin.";
Biochemistry 21:638-642(1982).
-!- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONI-
STRONGLY TO APATITE AND CALCIUM.
-!- PIM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE
DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE
BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOD_RES
MOD_RES
DISULFID
CONFLICT
MOD_RES
DISULFID
SEQUENCE
                             MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                  _MACFA
                                                                    SMART; SM00069; GLA; 1.
PROSITE; PS00011; GLU_CARBOXYLATION; 1.
Calcium-binding; Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART; SM00069; GLA; PROSITE; PS00011; GLU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00594; gla; 1.
PRINTS; PR00002; GLABONE.
                                                                                                                                                                                                                                                                                             Cercopithecinae; Macaca.
NCBI_TaxID=9541;
                                                                                                                                                                                                                                                                                                                Macaca fascicularis (Crab eating macaque) (Cynomolgus monkey).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
                                                                                                                                                                                                                                                                                                                                                                 21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Calcium-binding; Gamma-carboxyglutamic acid; SIGNAL 1 23 PROBABLE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MIM; 112260;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genew;
                                                              Bone
                                                                                                      Pfam; PF00594;
PRINTS; PR00002
                                                                                                                            InterPro; IPR002384;
InterPro; IPR000294;
                                                                                                                                                                                                                                                                                                                                                           protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROPEP
                                                                                                                                                                                                                                                                           SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                    SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S12652; S12652.
w; HGNC:1043; BGLAP
                                                                                                                                                                                                                                                                                                                                                                                                                       _MACFA
                                                                                                                                                A03302; GEMKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  46;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
             .17
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                                                                                                                 gla;
                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                       GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLU_CARBOXYLATION; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23
51
100
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                                                                                                                         GLA_bone.
VitK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97.8%;
93.9%;
  MW.
                                                                                                                                                                  TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MW;
         HYDROXYLATION.

GAMMA-CARBOXYGLUTAMIC A

GAMMA-CARBOXYGLUTAMIC A

GAMMA-CARBOXYGLUTAMIC A

BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
 BY SIMILARITY.
C20116014D0C4958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MISSING (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULES).
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OSTEOCALCIN.
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4DF2A0A80849CB71 CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4 266;
3.
                                                                                                                                                                                                                                                                                                                                                                                                                        49
                                                                       acid;
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                                                                                                                                                                                                                      BONE
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                                                                       Vitamin K; Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 100,
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                                                                                                                                                                                                                       PROTEIN.
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                    ACID.
ACID.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACID
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                                                                                                                                                                                                  BY VITAMIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (IN
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RESULT 3
OSTC_HORSE
OSTC_J
OSTC_BOVIN
ID OSTC_B
OSTC_B
AC P0282.b
AC P0282.b
DT 21-JUL
DT 10-AUG
DT 15-JUN
DE Osteoo
DE (Bone
GN BGLAP,
OS Bos ta
OC Eukary
OC Mammal
OC Bovida
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                                                                                                                                                   RESULT
                                                                                                                                                                                                                                   Query Match
Best Local S
Matches 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 89.8
Matches 44; Conservative
                                                                   21-JUL-1986
01-AUG-1990
15-JUN-2002
Osteocalcin |
                                                                                                                                                                                                                                                                                 MOD_RES
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P83005;
15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin_(Gamma-carboxyglutamic acid-containing protein) (Bone GLA-
                                                                                                                                                                                                                                                                                                                   MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carstanjen B., Wattiez R., Amory H., Lepage O.M., Remy B.; "Isolation and characterization of equine osteocalcin."; Ann. Med. Vet. 0:0-0(2002).
-i- FUNCTION: Constitutes 1-2% of the total bone protein. strongly to apatite and calcium.
-i- PTM: Gamma-carboxyglutamic acid residues are formed by
           Bos taurus (Bovine).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Equus caballus (Horse).
Eukaryota; Metazoa; Chordata; Craniata; Verts
Mammalia; Eutheria; Perissodactyla; Equidae;
                                                                                                                  P02820;
                                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR000294, Pfam; PF00594; gla;
Bovidae;
                                                                                                                                                                                                                                                                                                                                          Hydroxylation
MOD_RES
                                                                                                                                                                                                                                                                                                                                                                 Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             rissuE=Bone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE, HYDROXYLATION, AND GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein) (BGP).
                                                        Bone Gla-protein)
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                                                                                                                                                                                        <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                   dependent carboxylation. These residues binding of calcium.
SIMILARITY: BELONGS TO THE OSTEOCALCIN /
                                                                                                                                                                                                                                                                                                                                                                                                                          FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                  YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
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                                                                                                                               BOVIN
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                                                                                                                                                                                                                                                                                                                                                                                         SM00069;
                                                                                                                                                                                                                                                Similarity
Bovinae;
                                                                                                                                                                                                                                                                                                                                                                              PS00011;
                                                                                                                                                                                                                                                                                                                                                                                                              IPR000294; VitK_dep_GLA
                                                                                                                                                                                                                                                                                    49
                                                                  (Rel. 01, Created)
(Rel. 15, Last sequence update)
(Rel. 41, Last annotation update)
precursor (Gamma-carboxyglutamic
                                                                                                                                                                                                                                    Conservative
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                                                                                                                               STANDARD;
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                                                                                                                                                                                                                                                                                                                                                                Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                             GLU_CARBOXYLATION;
                                                         (BGP).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95.2%;
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                                                                                                                                                                                                                                                                                    MΕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 259; DB
Pred. No. 1.3e
1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ٠.
                                                                                                                                                                                                                                   Score 247; DB Pred. No. 5.6e 0; Mismatches
                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                         GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                BY SIMILARITY.
A5B826014D12857F CRC64;
                                                                                                                                                                                                                                                                                                                                           HYDROXYLATION
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                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              259; DB 1;
No. 1.3e-28;
                                                                                                                               100
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                                                                                                                                                                                                                               DB 1;
5.6e-27;
6;
                                                                                                                                                                                                                                                                                                                                                                   acid;
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                                                                                                                                                                                                                                                                                                                                                                   Vitamin
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                                                                    acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4;
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                                                                                                                                                                                                                                                          Length 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       formed by vitamin
             Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                         ACID.
                                                                                                                                                                                                                                                                                                                                 ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACIDS
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                                                                                                                                                                                                                                                                                                                                                                  7.
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                                                                                                                                                                                                                                    0;
                                                                    protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
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RESULT
OSTC_CJ
ID OSTC_TO
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DT 11
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Best Local S
Matches 42
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MEDLINE-77036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOD_RES
MOD_RES
MOD_RES
MOD_RES
DISULFID
SEQUENCE
                                                                                          OSTC_CANFA STANDARD; PRT; 49 AA P81455; 15-DEC-1998 (Rel. 37, Created) 15-DEC-1998 (Rel. 37, Last sequence update) 15-JUN-2002 (Rel. 41, Last annotation update) Osteocalcin (Gamma-carboxyglutamic acid-con)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X53699; CAA37737.1; -.
EMBL; X51700; CAA35997.1; -.
PIR; A03303; GEBO.
PIR; $12653; $12653.
InterPro; IPR002384; GLA_bone.
InterPro; IPR002384; V1tK_dep_GLA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                   protein) (BGP).
BGLAP.
                                                                                                                                                                                                                                                                                    CANFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROSITE; PS00011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bone;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE; PS00011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pfam; PF00594; gla;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kiefer M.C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic Acids Res. 18:1909-1909(1990).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *The cDNA and derived amino acid sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=90245603; PubMed=2336375;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9913;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                            52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                        familiaris (Dog)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; PRO0002; GLADU.....
SM00069; GLA; 1.
SM00069; GLA; 1.
"~^Annoll; GLU_CARBOXYLATION;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ch 89.7%;
l Similarity 85.7%;
42; Conservative
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 244; DB Pred. No. 3.2e 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROBABLE.
OSTECCALCIN.
OSTECCALCIN.
HYDROXYLATION.
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73015D1681B26219
                                                                                      ion update)
acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
.2e-26;
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es of
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human
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
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ACID.
                                                                                      protein)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BY VITAMIN
                                                                                             (Bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 40
                                                                                                                                                                                                                 MEDLINE-85054706; PubMed-6334077;
Shimomura H., Kanai Y., Sanada K.;
"Primary structure of cat osteocalcin.";
J. Biochem. 96:405-411(1984).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MOD_RES
MOD_RES
MOD_RES
DISULFID
SEQUENCE
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SMART; S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P02821;
21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              J. Bone Miner. Res. 8:733-743(1993).

-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE STRONGLY TO APATITE AND CALCIUM.

-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE DEPENDENT CARBOXYLATION. THESE RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OSTC_
                InterPro; IPR002384; InterPro; IPR000294; Pfam; PF00594; gla; 1
                                                                                                                                                                                                                                                                                                                                                                                  Felis silvestris catus
Eukaryota; Metazoa; Cho
Mammalia; Eutheria; Car
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE-93318657; PubMed-8101026; Colombo G., Fanti P., Yao C., Mal "Isolation and complete amino aci
PRINTS;
                                                                           PIR; A03304; GECT
                                                                                                                                                                               ÷
                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=9685;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein) (BGP).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR000294; Pfam; PF00594; gla;
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Mammalia; Eutheria;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                        FUNCTION: CONSTITUTES 1-2% OF THE TOTAL E STRONGLY TO APATITE AND CALCIUM. STRONGLY ACARBOXYGLUTAMIC ACID RESIDUES DEPENDENT CARBOXYLATION. THESE RESIDUES &
                                                                                                                     SIMILARITY:
                                                                                                                                        BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FAMILY.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BINDING OF CALCIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YLDSGLGAPVPYPDPLEPKREVCELNPNCDELADHIGFQEAYQRFYGPV
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SM00069; GLA; 1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                     BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; GLU_CARBOXYLATION; 1.
Gamma-carboxyglutamic acid; Vitamin K; Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5524 MW;
                                                                                                                                                                                                                                                                                                                                                                                    Chordata; Craniata; Vertebrata; Carnivora; Fissipedia; Felidae;
                                                                                                                                                                                                                                                                                                                                                                                                     chordata;
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                                     VitK_dep_GLA
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                                                                                                                     THE
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3; Mismatches
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Pred. No. 3
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acid sequ
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                                                                                                                     OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OSTEOCALCIN / MATRIX GLA-PROTEIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
3.9e-24;
6;
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                                                                                                                                                            ARE E
                                                                                                                                                                                                                       BONE
                                                                                                                     MATRIX GLA-PROTEIN
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Felis.
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RESULT 7
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Matches 38
Collart D., Zambetti G., Collart D., Collart D., Zambetti G., Collart D., Zambetti G., Collart D., Collar
                                                                                                                                                                                 Ineotan G., Haberstroh L.M., Price P.A.; "Molecular structure of the rat bone Glaidentification of putative regulatory elep DNA 8:213-221(1989).
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13-AUG-1987 (Rel. 05, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic (Bone Gla-protein) (BGP).
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Lian J., Stewart C., Puchacz E.,
Collart D., Zambetti G., Stein G.
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Celeste A.J., Buecker
"Isolation of the humarst cDNA clones.";
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MEDLINE=89251082;
                                                                                                                                                                                                                                                                                                                           Biochemistry
                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=89118266;
Yoon K., Rutledge
                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
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Mammalia; Eutheria;
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) J. 5:1885-1890(1986).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                propeptide of rat bone
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                                                                                                                                                                                                                                                                                                                        89118266; PubMed-3265336;
RutLedge S.J.C., Buenaga R.F., Rodan G
erization of the rat osteocalcin gene:
activity by 1.25-dihydroxyvitamin D3."
stry 27:8521-8526(1988).
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K-dependent protein precursors.";
A. 82:6109-6113(1985).
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
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Sciurognathi; Muridae;
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EMBL; M11777; AAA40816.1; -..
EMBL; M23637; AAA41761.1; -..
EMBL; M23639; AAA53280.1; -..
EMBL; M25490; AAA53280.1; -..
EMBL; J04500; AAA41764.1; -..
PIR; A25167; GERT.
PIR; A25471; A25471.
PIR; A31856; A31856.
PIR; A31419; A31419.
PIR; A3132324; A332324.
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01-FEB-1995 (Rel. 31
01-FEB-1995 (Rel. 31
15-JUN-2002 (Rel. 41
Osteocalcin (Gamma-c
(Bone Gla-protein) (
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MEDLINE=92175242; PubMed=1794506;
Virdi A.S., Willis A.C., Hauschka P.V., T.

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"Primary aminoacid sequence of rabbit ost
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InterPro; IPR000294; VitK_dep_GLA
Pfam; PF00594; gla; 1.
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                                                                                                                                      cuniculus (Rabbit).
Metazoa; Chordata; Ci
utheria; Lagomorpha;
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Gamma-carboxyglutamic acid;
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74.5%;
                                                                                                                                                                                                                                                Last sequence update)
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GAMMA-CARBOXYGLUTAMIC
(BY SIMILARITY).
GAMMA-CARBOXYGLUTAMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. 1.5
}; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
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a; Leporidae;
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No. 1.
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                                                                                                                                                                                                                               acid-containing
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                                 osteocalcin.";
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                                                   Triffitt J.T.;
                                                                                                                                        Vertebrata; Eu
ae; Oryctolagus
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                                                                                                                                                           Euteleostomi;
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OF IPRODO24.

ATO: IPRODO294;

ATO: IPRODO294;

INTO: PRODO294;

INTS: PRODO02: GLABONE.

SMART: SM00069; GLA; 1.

PROSITE: PRODO011; GLU_CAF

Calcium-binding: Gamma-
MOD_RES

MOD_RES
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OSTC_DRONO
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Best Local S
Matches 33
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01-APR-1990
01-APR-1990
15-JUN-2002
                                                                                                                                                                                                                                                                                                 MOD_RES
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MOD_RES
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MOD_RES
MOD_RES
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Eukaryota; Metazoa; Chordata; Cr
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Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K; Hydroxylation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                                                                BINDING OF CALCIUM.
SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                 FAMILY
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SM00069; GLA; 1.
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(Rel. 14, Last sequence)
(Rel. 41, Last annotation)
(Gamma-carboxyglutamic
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                                                ; GLU_CARBOXYLATION; 1.

Gamma-carboxyglutamic acid; Vitamin K;

GAMMA-CARBOXYGLUTAMIC ACID

20

GAMMA-CARBOXYGLUTAMIC ACID

23

GAMMA-CARBOXYGLUTAMIC ACID
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VitK_dep_GLA
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VitK_dep_GLA
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76.78;
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GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
GAMMA-CARBOXYGLUTAMIC A
BY SIMILARITY.
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Pred. No. 1.8e-20;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
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acid-containing
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Best Local S
Matches 32
 SIGNAL
PROPEP
CHÁIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DISULFID SEQUENCE
                                                                                                                                                                                                                                                                                    Carr S.A., Hauschka P.V., Biemann K.;

"Gas chromatographic mass spectrometric sequence dete osteocalcin, a gamma-carboxyglutuanic acid-containing chicken bone.";

J. Biol. Chem. 256:9944-9950(1981).

-i- FUNCTION: CONGYITUTES 1-2% OF THE TOTAL BONE PROT STRONGLY TO APATITE AND CALCIUM.

-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORM DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSEN BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P02822; Q90620;
21-JUL-1986 (Rel. 01, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin precursor (Gamma-carboxyglutamic acid-containing protein)
(Bone Gla-protein) (BGP).
                                    PROSITE; PS00011; Calcium-binding;
                                                          Pfam; PF00594; gla; 1. PRINTS; PR00002; GLABC SMART; SM00069; GLA; 1
                                                                                                                                                           entities requires a license agreement (Su or send an email to license@isb-sib.ch).
                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EM the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entities requires a license agreement (See http://www.isb-s
                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene: expression of osteocalcin by maturing hypertrophic chondrocytes in vitro."; J. Bone Miner. Res. 10:157-163(1995).
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHICK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Neugebauer B.M., Moore M.A.,
Hauschka P.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eute
Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gallus gallus (Chicken).
                                                                                                InterPro; IPR002384; InterPro; IPR000294;
                                                                                                                          PIR; A03305;
                                                                                                                                    EMBL; U10578;
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                                                                                                                                                                                                                                                                          SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                              FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             . Similarity 32; Conserv
                                                  PS00011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               48
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22
AA;
                                                                                                                          GECH
  21
49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        leghorn;
                                                                                                                                     AAA78809.1; -.
1; GLU_CARBOXYLATION; 1.
; Gamma-carboxyglutamic a 20 POTENTIAL. 48
97 OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                       GLABONE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           orn; TISSUE=Bone;
PubMed=7747623;
                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=6792200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28
5292
                                                                                                GLA_bone.
VitK_dep_GLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66.5%;
86.5%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 181; DB 1;
Pred. No. 4.8e-18;
1; Mismatches 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Broess
 OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.
50A00F3BFABC7FFD
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .
X
                                                                                                                                                                        (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                    acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gerstenfeld
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in the
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                                     Vitamin
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                                                                                                                                                                                                                                                                                                  ESSENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
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                                                                                                                                                                                                                                                                                                              FORMED
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                                     <u>...</u>
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                                     Bone;
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                                     Signal
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SERVICE SERVIC
RESULT
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Best Local S
Matches 32
                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRINTS: PROVOUS.

SMART; SM00069; GLA; 1.

PROSITE: PS000011; GLU_CARBOXYLATION; 1.

Calcium-binding; Gamma-carboxyglutamic acid; Vitamin Calcium-binding; Gamma-Carboxyglutamic AC GAMMA-CARBOXYGLU
P04641;
13-AUG-1987
01-OCT-1996
15-JUN-2002
Osteocalcin
                                                                                                                                       _MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P40147;
01-OCT-1996
01-OCT-1996
01-JUN-2002
Osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOD_RES
MOD_RES
MOD_RES
DISULFID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Xenopus laevis and the fish Sparus aurata.";
Int. J. Pept. Protein Res. 46:419-423(1995).
-!- FUNCTION: CONSTITUTES 1-28 OF THE TOTAL BONE PROTEIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002384;
InterPro; IPR000294;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Cancela M., Williamson M.K., Price P.A.; "Amino-acid sequence of bone Gla protein from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein) (BGP)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OSTC_XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=96139691;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Xenopodinae; Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Amphibia; Batrachia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xenopus laevis (African clawed frog).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        58
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE DEPENDENT CARBOXYLATION. THESE RESIDUES ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIMILARITY: BELONGS TO THE OSTEOCALCIN /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BINDING OF CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRONGLY TO APATITE AND CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
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                      (Rel. 05,
(Rel. 34,
(Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
  precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel.
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                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          34, Last sequence up 41, Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=8567186;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chordata; Craniata; Ver; Anura; Mesobatrachia;
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69
72
77
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85.7%;
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74.48;
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Last annotation update) (Gamma-carboxyglutamic
                   Last sequence up
                                                                                     Created)
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                                                                                                                                                                                                                                                                                                                                                                               Score 168; DB Pred. No. 2.8e 1; Mismatches
                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
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GAMMA-CARBOXYGLUTAMIC
GAMMA-CARBOXYGLUTAMIC
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              768E6885C3327D62 CRC64;
                                                                                                                                       PRT;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 acid-containing protein) (Bone Gla-
                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vertebrata; Euteleostomi;
ia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
.8e-16;
                                                                                                                                                                                                                                                                                                                             49
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acid-containing protein)
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SEQUENCE FROM N.A.
MEDLINE-87004555; Pubme
Celeste A.J., Buecker J
"Isolation of the human
rat cDNA clones.";
                                 SIGNAL
PROPEP
CHAIN
                                                                                                                                                                           MGD; MGI:88156; Bglap1.
MGD; MGI:88157; Bglap2.
InterPro; IPR002384; GLA_bone.
InterPro; IPR000294; VitK_dep_GLA.
Pfam; PF00594; gla; 1.
                                                                                                                                                                                                                                                                   EMBL;
PIR; E
                                                                                                                                                                                                                                                                                                    EMBL;
                                                                                                                                                                                                                                                                                                                                       EMBL;
                                                                                                                                                                                                                                                                                                                                                                                         the European Bioinformatics Institute. The use by non-profit institutions as not removed, modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
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MEDLINE=94117426; PubMed=8288580;

Desbois C., Hogue D.A., Karsenty G.;

Desbois C., Hogue D.A., Karsenty G.;

The mouse osteocalcin gene cluster contains three separate spatial and temporal patterns of expressic J. Biol. Chem. 269:1183-1190(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YOtov W.V., St Arnaud R.;
Submitted (JUL-1994) to the EMBL/GenBank/DDBJ databases.
-!- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN.
STRONGLY TO APATITE AND CALCIUM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=94062692; PubMed=8243336; Rahman S., Oberdorf A., Montecino M., Stein G.S., Laipis P.J., Stein J.L.;
                                                                                                       PROSITE; PS00011; GLU_CARBOXYLATION; 1. Calcium-binding; Gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -!- TISSUE SPECIFICITY: BONE.
-!- PTM: GAMMA-CARBOXYGLUTAMIC ACID
DEPENDENT CARBOXYLATION. THESE F
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Mammalia; Eutheria;
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BGLAP1 AND BGLAP2.
                                                                                      Multigene
                                                                                                                                             SMART;
                                                                                                                                                            PRINTS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   between
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                                                                                                                                                                                                                                                                 3L; X04142; CAA27762.1; -.
3L; S67455; AAB29145.1; -.
3L; L24429; AAA39854.1; -.
3L; L124431; AAA39856.1; -.
3L; U11542; AAB40035.1; -.
3; B25471; B25471.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MISCELLANEOUS: THERE ARE TWO GENES CODING FOR OSTEOCALCIN, CODING SEQUENCE ONLY DIFFERS IN THE SIGNAL PEPTIDE REGION. SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEII
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                                                                                                                                           SM00069; GLA;
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PR00002; GLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SS-PROT entry is copyright. It is produced through the Swiss Institute of Bioinformatics and the EN pean Bioinformatics Institute. There are no restr
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human gene for
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Rodentia;
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95
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              PROBABLE.
OSTEOCALCIN.
GAMMA-CARBOXYGLUTAMIC
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(BY SIMILARITY)
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                                                                                                        acid;
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Best Local
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                                                                                                                                                       YOLOV W.V., St Arnaud R.;

Submitted (JUL-1994) to the EMBL/GenBank/DDBJ databases.

-I- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT STRONGLY TO APAPITE AND CALCIUM.

-I- TISSUE SPECIFICITY: EXPRESSED IN KIDNEY BUT NOT IN BONE.
-I- PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY V

DEPENDENT CARBOXYLATION. THESE RESIDUES ARE ESSENTIAL FO BINDING OF CALCIUM (BY SIMILARITY).

BINDING OF CALCIUM (BY SIMILARITY). MATRIX GLA-PROT
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CONFLICT
SEQUENCE
                                                                                                                  This SWI
between
                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.

MEDILINE-94117426; PubMed-8288580;

Desbois C., Hogue D.A., Karsenty G.;

"The mouse osteocalcin gene cluster contains three separate spatial and temporal patterns of expressio J. Biol. Chem. 269:1183-1190(1994).
            EMBL;
EMBL;
                                                       use by non-profit institutions as long modified and this statement is not removed entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                       the
                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
MEDLINE-94062692; PubMed-8243336;
Rahman S., Oberdorf A., Montecino
Stein G.S., Laipis P.J., Stein J.I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus (Mouse)
Eukaryota; Metazoa;
Mammalia; Eutheria;
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01-OCT-1996 (Rel. 34, Last sequence up
15-JUN-2002 (Rel. 41, Last annotation
Osteocalcin-related protein precursor
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                                                                                                                                                                                                                                                                                                                              "Multiple
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            L24430; AAA39855.1;
S67456; AAB29146.1;
Ul1541; AAB60445.1;
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Metazoa; Chordata; C
matheria; Rodentia;
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LS -> IF (IN BGLAPA)
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A -> P (IN REF. 1)
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GAMMA-CARBOXYGLUTAMIC
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A -> P (IN REF. 1).
D4AA611134805D9B CRC64;
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T "Comparison of gamma-carboxyglutamic acid-containing proteins fro
T bovine and swordfish bone: primary structure and Ca++ binding.";

L (In) Wasserman R.H., Corradino R.A., Carafoli E., Kretsinger R.H.
L Maclennan D.H., Siegel F.L. (eds.);

Calcium-binding proteins and calcium function, pp.333-337,

L Elsevier, New York (1977).

C -:- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN. IT BIND
C -:- FUNCTION: CONSTITUTES 1-2% OF THE TOTAL BONE PROTEIN TO STRONGLY TO APATITE AND CALCIUM.

C -:- FUNCTION: CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMI
C DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DESCRIPTION:

STRONGLY TO CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
C DESCRIPTION:

C -:- SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
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SMART; SM000611; GLU_CARBOXYLATION;
PROSITE; PS00011; Gamma-carboxyglutam
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DISULFID SEQUENCE
           MOD_RES
                                                                                                                                                                                                                                                                                                                                                                                protein) (BGP).
Xiphias gladius (Swordfish).
Eukaryota; Metazoa; Chordata; Craniata; Vert.
Actinopterygii; Neopterygii; Teleostei; Eute.
Acanthomorpha; Acanthopterygii; Percomorpha;
Xiphiidae; Xiphias.
                                     MOD_RES
                                                                Calcium-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Osteocalcin
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InterPro; IPR000294;
Pfam; PF00594; gla;
                                                                                                                                            PIR; A03306; GEWF
                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-JUL-1986
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P02823;
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                                                                           PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21-JUL-1986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOD_RES
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47 LRRYLGASVPSPDPLEPTRELCELDPACDELSNQYGLKTAYRRIYG
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PR00002; GL
                                                                                          PR00002;
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                                                                           PS00011;
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(Rel. 01, Last sequence update)
(Rel. 41, Last annotation update)
(Gamma-carboxyglutamic acid-containing
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                                                                                         GLABONE
                                   ; GLU_CARBOXYLATION; 1.

Gamma-carboxyglutamic acid; Vitami
Gamma-carboxygLUTAMIC
17
GAMMA-CARBOXYGLUTAMIC
17
GAMMA-CARBOXYGLUTAMIC
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95
62
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56.5%;
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VitK_dep_GLA
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VitK_dep_GLA
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OSTEOCALCIN-RELATED PROTEIN
GAMMA-CARBOXYGLUTAMIC ACID
(BY SIMILARITY).
GAMMA-CARBOXYGLUTAMIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 144; DB 1
Pred. No. 1e-12;
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 8D93FE1787B09223
                          GAMMA-CARBOXYGLUTAMIC
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                                                                                                                                                                      OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
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ACID.
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Neoteleostei;
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                                                                Bone.
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RESULT 15
OSTC_SPAAU
Search completed: December 4, Job time: 12 secs
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Best Local Similarity
Matches 13; Conserv
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Best Local Similarity
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MOD_RES
MOD_RES
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF00594; gla; 1.

PRINTS; PR00002; GLABONE.

PROSITE; PS00011; GLU_CARBOXYLATION; PARTIAL.

Calcium-binding; Gamma-carboxyglutamic acid; Vitamin K; Bone.

MOD_RES 11 11 GAMMA-CARBOXYGLUTAMIC ACID.

MOD_RES 15 15 GAMMA-CARBOXYGLUTAMIC ACID.

MOD_RES 18 18 GAMMA-CARBOXYGLUTAMIC ACID.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE-96139691; PubMed-8567186;

MEDLINE-96139691; PubMed-8567186;

Cancela M., Williamson M.K., Price P.A.;

Cancela M., Williamson M.K., Price P.A.;

Pamino-acid sequence of bone fla protein from the African clawed toad ramino-acid sequence of bone fla protein from the African clawed toad Xenopus laevis and the fish Sparus aurata.";

Int. J. Pept. Protein Res. 46:419-423(1995).

- I FUNCTION: CONSTITUTES I -2% OF THE TOTAL BONE PROTEIN. IT BINDS STRONGLY TO APATITE AND CALCIUM.

- I - PTM: GAMMA-CARBOXYGLUTAMIC ACID RESIDUES ARE FORMED BY VITAMIN K DEPENDENT CARBOXYGLUTAMIC ACID RESIDUES ARE ESSENTIAL FOR THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein) (BGP).

Sparus aurata (Gilthead sea bream).

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidei; Sparus.

NCBI_TaxID=8175;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OSTC_SPAAU STANDARD; PRT; 45 AA.
P40148;
01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Osteocalcin (Gamma-carboxyglutamic acid-containing protein) (Bone Gla-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002384; GLA_bone.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -!- SIMILARITY: BELONGS TO THE OSTEOCALCIN / MATRIX GLA-PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR000294;
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                                                                                                                                                      14 REVCELNLACEHMMDTEGIIAAYTAYYGPI 43
                                                                                                                                                                                                       20 RXVCXLNPDCDELADHIGFQEAYRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18;
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ilarity 43.3%;
Conservative
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                                    2002, 15:44:32
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Pred. No. 7.2e-06;
3; Mismatches 16
                                                                                                                                                                                                                                                                                                         Score 71; DB 1;
Pred. No. 0.0035;
4; Mismatches 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY.
5BAEE6A1D0CB4A18 CRC64;
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                                                                                                                                                                                                                                                                                                                                                                                   Length 45;
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GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd

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Minimum DB seq length: 0
Maximum DB seq length: 2000000000
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49
1 YLYQWLGAPVPYPD
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                          110:
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| SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
| SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
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Pred. No. is the number of results predicted by chance score greater than or equal to the score of the result and is derived by analysis of the total score distribut score distribution to have a being printed,

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51.0	57.1	57.1	61.2	87.8	100.0	100.0	100.0	100.0	100.0	Query Match
46	49	49	100	97	E	100	98	51	49	Query Match Length DB
22	18	18	23	13	23	12	19	12	20	BB
AAB91919	AAW34265	AAW34263	AAU10688	AAR20043	AAU10687	AAR10147	AAW76094	AAR10146	AAW99811	ID
Bone Gla protein p	Gla21-osteocalcin	Glu17-osteocalcin	Polymorphic varian	Fusion protein for	Reference sequence	Human osteocarcin	Human osteocalcin	Human osteocarcin	Human osteocalcin	Description

(KAEK/) KAEKOENEN S.

45	44	43	42	41	40	39	38	37	36	35	34	33 33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	
13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	14	14	19	20	20	25	25	25	25	25	
σ.		ტ.		6.	٥,	6		٥,	6.	٥.	٥.	٥.	٥.	ა	ς.	σ.	26.5	٥.	6.		ς.	σ.	σ.	5	8	8	8	0		۲			۲.	51.0	
58	55	55	46	45	44	44	43	39	38	18	15	13	13	13	13	13	13	13	13	13	13	13	13	13	83	15	20	49	21	49	49	49	49	47	
23	23	23	23	23	23	23	18	23	23	20	21	23	23	23	23	23	23	23	22	22	22	22	21	18	23	11	13	16	11	18	18	14	14	22	
845	84	845	AAU88440	AAU88443	AAU88447	AAU88438	AAW19897	AAU88442	AAU88451	AAY05366	AAY70693	AAM48056	AAE18389	AAE18828	AAU78634	AAU98372	ABB83453	AA015409	AAB70172	AAB91920	AAU02089	AAG65668	AAY58430	AAW04605	AA017841	AAR06631	AAR26407	æ	AAR06630	AAW34266	σ	AAR32937	AAR32936	AAB91917	
Ļ	ulin/insulin-	Ļ	Insulin/insulin-li	in/insulin-	Ļ	Insulin/insulin-li	Vector pUC119EHIS-	\vdash	Insulin/insulin-li	9	li antibody		BGP pept	ed in th	C E tag	.c E tag p	E tag. Synthetic.		Synthetic		ťΩ	used for re	E tag peptide, SEQ	_		alc	ocalc	ia	_	Gla21-osteocalcin	17-osteo	17, 21, 24, Gla hu	21, 24, Gla human	Bone Gla protein p	

ALIGNMENTS

AAW99811 RESULT 1

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Modified-site
                                                                                                                        Key
Modified-site
                                                                                                                                                               Human; osteocalcin; urine; gamma-carboxylated; bone disorder; hOC;
bone turnover; puberty; menopause; detection.
                                                                                                                                                                                                     08-JUN-1999 (first entry)
                                                                                                                                                                                                                     AAW99811;
                                                                                                                                                                                                                                    AAW99811 standard; Protein; 49
                      15-AUG-1997;
                                     24-JUN-1998;
                                                    25-FEB-1999
                                                                   WO9909058-A1
                                                                                                          Modified-site
                                                                                                                                                Homo sapiens.
                                                                                                                                                                                      Human osteocalcin fragment.
                     97FI-0003371.
                                     98WO-FI00550.
                                                                                                                         Location/Qualifiers
                                                                                                          /note= "possibly gamma-carboxylated"
21
                                                                                           /note= "possibly gamma-carboxylated"
24
                                                                                  /note= "possibly gamma-carboxylated
             applicant.
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RESULT 2
AAR10146
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Best Local S
Matches 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              measure the rate of bone turnover (formation and/or resorption) and/or for investigating metabolic bone disorders in individuals. Especially mentioned, the assays can detect differences between adults and children going through puberty, pre- and post-menopausal women and children having high bone turnover. The assay allows more sensitive detection of human osteocalcin (hOC) in urine than in serum. Significant increases in hOC (40-48%) were detected in serum in menopause (normal increase is 30-50% above pre-menopausal women). Detection of urine hOC using the assay showed an increase as high as 75-79%. The present sequence represents a fragment of hOC.
                                                                                                                                         Misc-difference
                                                                                     03-DEC-1990
                                                                                                                                                                                                                   calcium;
                                                                                                                                                                                                                               Human
                                                                                                                                                                                                                                                   Human osteocarcin
                                                                                                                                                                                                                                                                                                                  AAR10146 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; Fig 1A; 49pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hellman J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (KARP/)
(LOEV/)
(PETT/)
                              06-DEC-1988;
22-AUG-1989;
                                                               22-AUG-1989;
                                                                                                          JP02201294-A
                                                                                                                                                               Misc-difference
                                                                                                                                                                          Key
                                                                                                                                                                                              Homo
                                                                                                                                                                                                                                                                        27-MAR-1991
                                                                                                                                                                                                                                                                                              AAR10146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           human osteocalcin found in urine, where the glutamic acid residues at positions 17, 21 and 24 are gamma-carboxylated. The assay is used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            metabolic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human osteocalcin peptide fragments
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          (TAKA-) TAKARA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  An assay has been developed for the detection
                                                                                                                                                                                                                                                                                                                                                                         Н
                                                                                                                                                                                                                                                                                                                                                                                            1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                              sapiens
                                                                                                                                                                                                                                                                                                                                                                       1999-180972/15
DB; AAX19767.
                                                                                                                                                                                                                               osteocarcin
                                                                                                                                                                                                                                                                                                                                                                                                                   49;
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                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
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PETTERSSON K.
                                                                                                                                                                                                                   vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bone turnover rates and
                                                                                                                                                                                                                                                                                                                                                                                                                                                              49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HK;
                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kaekoenen
                                                                                                                                                                                                                                                                        (first entry)
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           SYUZO KK
                              88JP-0306931.
89JP-0214239.
                                                               89JP-0214239
                                                                                                                                         /note=
51..51
                                                                                                                                                             Location/Qualifiers
                                                                                                                               /note=
                                                                                                                                                                                                                   K; bone formation; dysb
                                                                                                                                                                                                                                                   precursor
                                                                                                                                                                                                                                                                                                                  peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŝ
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                                                                                                                                                  "residue may be omitted"
                                                                                                                               "residue may
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                                                                                                                                                                                                                                                   polypeptide (I).
                                                                                                                                                                                                                                                                                                                   51
                                                                                                                                                                                                                                                                                                                                                                                                                  Score 49; DB
Pred. No. 1.6
0; Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Z,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            disorders
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                                                                                                                               bе
                                                                                                                                                                                                                   dysbolism
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                                                                                                                               omitted'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      useful
                                                                                                                                                                                                                                                                                                                                                                                                                            1.6e-45;
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                                                                                                                                                                                                                             carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of gamma-carboxylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      for
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                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      detecting
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                  0;
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RESULT 3
AAW76094
ID AAW7
XX
AC AAW7
XX
DT 21-I
DT 21-I
XX
Humm
XX
KW Proi
KW Proi
KW Stel
KW Ostn
KW genn
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Best Local S
Matches 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.coli HB101 was transformed with this plasmid, ar made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained
               This
                                                                 Expression of exogenous genes in differentiated cells - by transducing pluripotent stem cells capable of maturing into differentiated cells with nucleic acid comprising exogenous useful for, e.g. treatment of osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                    gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OC is a calcium bonded protein (depending on vitamin K) produced in the bone. It is thought to be a promoting factor during the bone formation and may be used to treat diseases due to dysbolism of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human osteocarcin (OC) precursor polypeptide - purified OC by digestion with carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 1991-018865/03.
                                                                                                                                      WPI; 1998-495839/42.
N-PSDB; AAV46429.
                                                                                                                                                                                                                                                06-MAR-1997;
                                                                                                                                                                                                                                                                           06-MAR-1998;
                                                                                                                                                                                                                                                                                                                               W09839427-A2
                                                                                                                                                                                                                                                                                                                                                                                                  osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                            Promoter; tissue-specific gene expression; skeletal tissue; stem cell; bone; cartilage; osteocalcin; hOC gene; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAW76094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAW76094 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human precursor was further treated with carboxy peptidase to prepare purified human {\sf OC}_{\boldsymbol{\cdot}}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 To K1 is attached H and to K51 is attached
                                       Disclosure; Page 33-34; 63pp; English.
                                                                                                                                                                              Quesenberry
                                                                                                                                                                                           Frenkel B,
                                                                                                                                                                                                                                                                                                       11-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-DEC-1998
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                                                                                                                                                                                                                     (UYMA-) UNIV MASSACHUSETTS
                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
is the amino acid sequence the coding exons of the hum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     is thought to be a promoting factor and may be used to treat diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    51
                                                                                                                                                                             P,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                  osteopenia; osteosarcoma; cancer;
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                                                                                                                                                                                                                                                97US-0039839
                                                                                                                                                                                                                                                                           98WO-US04421
                                                                                                                                                                              Z, Lian JB, Nilsson
Stein GS, Stein JL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.0%;
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Pred. No. 1.7e-45;
Mismatches 0;
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              of
 the
hoc
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 gene (see AAV46429).
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                                                                                                                                                                                                                                                                                                                                                                                                   metastasis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 51;
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              deduced
                                                                                gene,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
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human

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RESULT 4
AAR10147
invention pertains to a method for expressing endogenous genes in differentiated cells of a specific type. The method involves contacting pluripotent stem cells capable of maturing into differentiated cells with a nucleic acid comprising an exogenous gene linked to a regulatory element capable of controlling expression of the exogenous gene in the differentiated cells. A population of transduced stem cells capable of maturing into differentiated cells expressing the exogenous gene is produced. Preferably, the differentiated cells are in a tissue of interest, such as bone or cartilage, and the exogenous gene is operably linked to at least one osteocalcin regulatory element derived from the hOC promoter. The exogenous gene can encode a therapeutic protein useful for treating a disease, especially osteoporosis, osteopenia, osteosarcoma, crimary malignancy or metastases (all claimed).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                  A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.Coli HB101 was transformed with this plasmid, an made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained human precursor was further treated with carboxy peptidase to prepar purified human oc.

OC is a calcium bonded protein (depending on vitamin K) produced in
                                                                                                                                                                                                                                                                                          Human osteocarcin purified OC by dig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR10147;
                                 See also AAR10147 and
                                                                                                                                                                                                                      To K1 is attached H and to V100 is attached OH.
                                                                                                                                                                                                                                                         Claim
                                                                                                                                                                                                                                                                                                                                               WPI; 1991-018865/03
                                                                                                                                                                                                                                                                                                                                                                               (TAKA-) TAKARA SYUZO
                                                                                                                                                                                                                                                                                                                                                                                                               06-DEC-1988;
22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-AUG-1989;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JP02201294-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           calcium; vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human osteocarcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human osteocarcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27-MAR-1991
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                                                                   formation
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                                                                                                                                                                                                                                                         5; Page 1; 11pp; Japanese
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       49;
                                                                                                calcium bonded protein (depending on vitamin K) produced in
                                                                  and may
                                                                                  is thought to be a promoting factor during the bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                          cin (OC) precursor polypeptide -
digestion with carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                               88JP-0306931.
89JP-0214239.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   89ЛР-0214239.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         n precursor polypeptide; OC; carboxypeptidase K; bone formation; dysbolism.
                                                                  be used to treat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100.0%;
                                AAQ10193-98
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Pred. No.
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. 2.9e-45;
ches 0;
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B.
                                                                to dysbolism of the
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Sequence

AAR20043 RESULT 6

AAR20043

standard;

Protein;

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RESULT 5
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Best Local S
Matches 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 49; Conserv
                                                                                                                            The present invention relates to novel single nucleotide polymorphism (SNPs) in the human bone gamma carboxyglutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as proband primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds useful for (developing) treatment of diseases associated with BGLAP activity, such as osteoporosis. The present sequence represents a reference sequence for the BGLAP protein.
                                                                                                                                                                                                                                                                                                                New haplotypes of the human bone gamma carboxyglutamate protein useful to diagnose and treat diseases associated with the gene s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                W0200177131-AZ
                                                                                                      Sequence
                                                                                                                                                                                                                                                                           Claim 27; Fig 3; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                               Bentivegna SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; single nucleotide polymorphism; SNP; BGLAP; chromosome bone gamma carboxyglutamate protein; haplotyping; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Reference sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-APR-2000; 2000US-195840P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-APR-2001; 2001WO-US12010.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-FEB-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAU10687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAU10687 standard; Protein; 100
                                                                                                                                                                                                                                                                                                                                                                                                                           (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-OCT-2001.
 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --
                           YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
             YLYQWIGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                        2002-041288/05
                                                   Similarity 49; Conserv
                                                                                                                                                                                                                                                                                                                                                         AAS16363,
                                                                                                       100
                                               100.0%;
nilarity 100.0%;
Conservative 0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    osteopathic.
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Pred. No. 3e-
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BGLAP
                                                  Score 49; DB 23
Pred. No. 3e-45;
Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3e-45;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12;
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                                                                             Length 100;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49
                                                                                                                                                                                                                                      BGLAP) gene
                                                                                                                                                                                 ASUS) as probes detecting the
                                                     0;
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                                                     Gaps
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RESULT 7
AAU10688
ID AAU1
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                                                                                                                                Query Match
Best Local Similarity
Matches 43; Conserv
                                                                                                                                                                            This sequence is a specific example of a claimed generic fusion protein comprising human osteocalcin. The pro peptide is recognised by an enzyme capable of Glu to Gla conversion on human osteocalcin. The recombinant protein was obtained by culturing host cells transformed with a vector containing the synthetic coding sequence. The Glu residues could then be converted to Gla (i.e. gamma-carboxyglutamic acid) and the osteocalcin sequence cleaved from the propeptide. The mature protein is suitable for use in immunoassays and as a drug for treatment of bone metabolism disorders. See also AAR20044-6.
Human; single
                                                                                                                                                                                                                                                               Claim
                                                                                                                                                                                                                                                                                                            WPI;
                                                                                                                                                                                                                                                                                                                                                         30-NOV-1990;
20-JUN-1990;
                                                                                                                                                                                                                                                                                                                                                                                20-JUN-1991;
                                                                                                                                                                                                                                                                                                                                                                                               02-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                   Cleavage-site
Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gamma-carboxyglutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fusion protein for expression of human osteocalcin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              09-APR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR20043;
                Polymorphic variant of human BGLAP protein.
                               14-FEB-2002
                                              AAU10688;
                                                             AAU10688 standard;
                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                         (TEIJ ) TEIJIN
                                                                                                                                                                                                                                                                                                                                                                                                             EP463571-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Peptide
                                                                                                                                                                                                                                                                               tusion
                                                                                                   49
                                                                                                          1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYR 43
                                                                                                   YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYR 91
                                                                                                                                                                                                                                                                                                            1992-009183/02
                                                                                                                                                                                                                                                               15;
                                                                                                                                                                                                                                                                             osteocalcin prodn. - using n protein for expression in
                                                                                                                                                                                                                                                                                                                           Ή
                                                                                                                                                                                                                                                              Fig 7; 53pp;
                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                                            Kamimura
                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                              (first
                                                                                                                                                              AA;
nucleotide
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90JP-0159909
                                                                                                                                                                                                                                                                                                                                                                               91EP-0110173
                                                                                                                                                                                                                                                                                                                                                                                                                                   /label= pro_peptide
45..48
49..97
                                                                                                                                                                                                                                                                                                                                                                                                                                                          /label= signal_peptide 23..44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                             /label= osteocalcin
                                                             Protein;
                                                                                                                                                                                                                                                                                                                            TF,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entry)
                              entry)
                                                                                                                                       87.8%;
100.0%;
                                                                                                                                                                                                                                                              English.
polymorphism;
                                                                                                                                                                                                                                                                                                                           Sugiyama
                                                             100
                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bone matrix; Gla protein
                                                                                                                                       Score 43;
Pred. No.
                                                                                                                                 Mismatches
                                                             A
                                                                                                                                                                                                                                                                             DNA coding host cells
                                                                                                                                                                                                                                                                                                                           H
                                                                                                                                                                                                                                                                                                                            Hosoda
SNP;
                                                                                                                                       DB 13; 1
8.7e-39;
BGLAP;
                                                                                                                                                                                                                                                                                     for human osteocalcin
                                                                                                                                                                                                                                                                                                                           7
                                                                                                                                              Length 97
                                                                                                                                 Indels
chromosome 1q25-q31;
                                                                                                                                0;
                                                                                                                               Gaps
                                                                                                                               0
                                                                                                                        RESULT 8
AAW34263
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                                                                                                                                                                    QΥ
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Query Match
Best Local 9
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Note: The present sequence is not given in the specification but is created by the indexer from the information given in the patent.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              bone gamma carboxyglutamate protein; haplotyping; genotyping;
osteoporosis; osteopathic; variant.
                                                                                                                                                                                Glu17-osteocalcin peptide #1.
                                                                                                                                                                                                                                                                                                       AAW34263 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New haplotypes of the human bone gamma carboxyglutamate protein gene, useful to diagnose and treat diseases associated with the gene such a
                  Modified-site
                                                                                 Homo
                                                                                                                      osteoporosis;
                                                                                                                                         Glu17-osteocalcin;
                                                                                                                                                                                                                          23-APR-1998
                                                                                                                                                                                                                                                               AAW34263;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 27; Page -; 53pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bentivegna SC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-APR-2000; 2000US-195840P.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                    52 YLYQWLGAPVPYPDPLEPRREVCELNPDCD
                                                                                                                                                                                                                                                                                                                                                                                                                             1 YLYQWLGAPVPYPDPLEPRREVCELNPDCD
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                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2002-041288/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ΑĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chew A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note= "Substitution 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers 82
                    Location/Qualifiers 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note=
                                                                                                                                         Gla21-osteocalcin; antibody; bone disorder;
                                                                                                                                                                                                                                                                                                   peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61.2%;
"gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Substitution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Choi JY,
                                                                                                                                                                                                                                                                                                       49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 30;
Pred. No.
                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
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                                                                                                                                                                                                                                                                                                                                                                                                         81
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 23
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  acid"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 100;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                           diagnosis;
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AAW34/SA

AAW34/SA

AAW34/SA

AC AAW3

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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This sequence represents a human Glu17-osteocalcin peptide. This sequents recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gla21-osteocalcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI;
                       Kimura
                                                                                                                                                                                                                                                                                                                                                                                                                                                           osteoporosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Glul7-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW34265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    osteoporosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Antibody specific for Glu17-osteocalcin, or its fragment diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-FEB-1997;
10-APR-1996;
                                                            (EISA ) EISAI CO LTD.
                                                                                                     27-FEB-1997;
10-APR-1996;
                                                                                                                                                                  10-APR-1997;
                                                                                                                                                                                                           16-OCT-1997.
                                                                                                                                                                                                                                                    WO9738309-A1
                                                                                                                                                                                                                                                                                                              Modified-site
                                                                                                                                                                                                                                                                                                                                                        Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                      Homo
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-APR-1997;
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                       ₩,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49
                     Morimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry
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                                                                                                                                                                                                                                                                                                                                                                                                                                                             human.
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96JP-0088608
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96JP-0088608
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21
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100.0%;
                                                                                                                                                                                                                                                                                                                                "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                         "gamma-carboxyglutamic acid"
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Pred. No
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7.4e-23;
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RESULT 10
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a reactive group (II) (e.g. succinimidyl and maleimido groups) attached to a less therapeutically active amino acid region (IV), which covalently bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptide composed of 3-50 amino acids. (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This sequence represents a human Gla21-osteocalcin peptide. This sequent is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI;
                                                                                                                                                                                                                                                                                                        17-MAY-1999;
10-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protection; endogenous therapeutic peptide; peptidase; conjugation; blood component; modification; succinimidyl; maleimido group; amino hydroxyl; thiol; hormone; growth factor; neurotransmitter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bone Gla protein
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                                                                                                                                   Disclosure;
                                                                                                                                                                                                               WPI; 2001-112059/12.
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                                                                                                                                 Page 553;
                                                                                                                                                                                                                                        Ezrin AM,
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99US-0153406.
99US-0159783.
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7.4e-23;
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length of in vivo a
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RESULT 11
AAB91917
The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a comprising a therapeutically active amino acid region (IV) attached to a less therapeutically active amino acid region (IV), which covalently bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptide composed of 3-50 amino acids. (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to alumin prevents or reduces the action of peptidases to increase length of activity (half collect the action of peptidases to increase length of activity (half collect the action of peptidases to large molecules decreases
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Best Local S
Matches 25
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10-SEP-1999;
15-OCT-1999;
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                                                                                                                                                                                                                                                                                                                                                                             Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      peptidase
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bridon
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        blood component;
hydroxyl; thiol;
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25; Conserv
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                                                                                                                                                                                                                                                                                                                                                                             Page 552-553;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ezrin AM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
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99US-0153406.
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Pred. No.
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RESULT 12
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Matches 25
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                                                                                    Query Match
                                                                        Best
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  intracellular uptake and interference with physiological processes. AAB90829 to AAB92441 represent peptides which can be used in the exemplification of the present invention.
                                                                                                                                                                         osteocalcin (OS) was produced by introducing protected Gla. The substance may be produced in high yield and is useful as standard
                                                                                                                                                                                                                                                                osteo:calsin - prepd. has fluorenyl protected
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                                                                                                                 Sequence
                                                                                                                                                                                                         The synthetic 21,
                                                                                                                                                                                                                                     Claim 1; Page 2; 10pp; Japanese
                                                                                                                                                                                                                                                                                              Synthetic human osteo:calsin for standard in determn.
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25
                25 LNPDCDELADHIGFQEAYRRFYGPV 49
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2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

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5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

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Copyright (c) 1993 - 2002 Compugen Ltd.
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US-09-677-010-3
US-09-68-790-919-3
US-09-68-747-7
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Patent No. 5168041
Sequence 13, Appl
Sequence 13, Appl
Sequence 112, Appl
Sequence 5, Appli
Sequence 43, Appli
Sequence 5, Appli
Sequence 3, Appli
Sequence 3, Appli
Sequence 2, Appli
Sequence 28, Appli
Sequence 28, Appli
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Sequence 27, Appli
Sequence 322, Appli
Sequence 37, Appli
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Patent No. 5434245
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  Query Match 100.0%; Score 284; DB 6; Best Local Similarity 100.0%; Pred. No. 1.3e-30; Matches 49; Conservative 0; Mismatches 0;
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RESULT 2 \$434245-2 PATENT NO. 5434245 APPLICANT: KOYAMA, NOBUTO; KIMIZUKA, FUSAO; KATO, IKUNOSHIN TITLE OF INVENTION: POLYPEPTIDES AND METHOD FOR PREPARING THE SAME INUMBER OF SEQUENCES: 10 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/07/993,980 FILING DATE: 16-DEC-1992 PRIOR APPLICATION DATA: APPLICATION NUMBER: 855,473; 444,786 FILING DATE: 23-MAR-1992; 01-DEC-1989 APPLICATION NUMBER: 444,786 FILING DATE: 01-DEC-1989 SEQ ID NO:2: LENGTH: 50 5434245-2	Query Match 100.0%; Score 284; DB 6; Length 49; Best Local Similarity 100.0%; Pred. No. 1.2e-30; Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0; Matches 49; Conservative 0; Mismatches 0; Indels 0; Gaps 0; 1 YLYQWIGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49 1 YLYQWIGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49 Db 1 YLYQWIGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49	D METHOD FOR 0 786 1989	AL 245 KOYAMA, NOBUTO; KIMIZUK	28 53.5 18.8 423 1 US-08-523-376-3 29 53.5 18.8 486 4 US-08-259-451-13 30 53 18.7 666 4 US-08-937-067-10 31 53 18.7 1956 4 US-08-843-417-2 32 53 18.7 1957 4 US-08-669-656A-8 33 53 18.7 2132 4 US-08-669-656A-8 34 52 18.3 116 5168041-2 35 52 18.3 117 6 5168041-2 36 51 18.0 323 2 US-08-469-656A-2 37 51 18.0 323 2 US-08-435-149-2 38 51 18.0 323 2 US-08-435-149-2 39 51 18.0 324 1 US-08-888-171-14 39 51 18.0 324 2 US-08-310-416A-14 39 51 18.0 431 4 US-09-038-832-2 40 51 18.0 431 4 US-09-038-832-2 40 51 18.0 431 4 US-09-038-832-4 41 51 18.0 577 2 US-08-435-149-3 42 51 18.0 611 4 US-09-748-061A-32 43 51 18.0 611 4 US-09-748-061A-32 45 51 18.0 611 4 US-09-748-061A-32 56 51 18.0 611 4 US-09-748-061A-32 56 51 18.0 611 4 US-09-748-061A-32 57 58 58 58 58 58 58 58 58 58 58 58 58 58
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5434245-3
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; APPLICANT: KOYAMA, NO!
; TITLE OF INVENTION: PO
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; APPLICANT: KOYAMA,
                                                                                                                                                                                                                                                                                                                                                                                                                       ;SEQ ID NO:4:
                                                                                                     FOR PREPARING THE SAME AND METHOD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HE;
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                                                                                       PATEOR NO. 5164483

APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose
TITLE OF INVENTION: Y-CARBOXYCLUTAMATE DERIVATIVE METHOD
TOTAL THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCAL
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APPLICATION NUMBER: 855,473; 444,786
FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
FILING DATE: 01-DEC-1989
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FILING DATE: 23-MAR-1992; 01-DEC-1989
APPLICATION NUMBER: 444,786
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FILING DATE: 16-DEC-1992
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                                 US/07/575,639
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                                                                                                                                                                                                                                                                                                                                Score 284; DB 6;
Pred. No. 1.3e-30;
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Pred. No. 1.3e-30;
); Mismatches 0;
                                                                                                     HUMAN OSTEOCALCIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 50;
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RESULT 8
5168041-1
                                                             PATENT NO. 5168041

PAPPLICANT: BERGMANN, ANDREAS E.

TITLE OF INVENTION: METHOD FOR THE DETERMINATION OF COSTECCALCIN IN HUMAN SERUM OR PLASMA

NUMBER OF SEQUENCES: 2

NUMBER OF SEQUENCES: 2
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5164483-3
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5164483-1
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APPLICANT: Takashi, Kurihara; Eiji, 'Taniyama; Sachio, Hirose TITLE OF INVENTION: Y-CARBOXYGLUTAMATE DERIVATIVE METHOD; FOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALCIN; USING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PATENT NO. 5164483
APPLICANT: Takashi, Kurihara; Eiji, Taniyama; Sachio, Hirose
TITLE OF INVENTION: Y-CARBOXYCLUTAMATE DERIVATIVE METHOD
TOR PREPARING THE SAME AND METHOD FOR PREPARING HUMAN OSTEOCALA
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Best Local S
Matches 46
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Best Local S
Matches 47
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APPLICATION NUMBER: US/07/575,639
FILING DATE: 31-AUG-1990
SEQ ID NO:3:
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LENGTH: 49
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Best Local
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                                        APPLICATION NUMBER: US
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/
FILING DATE: 31-AUG-1990
              ID NO:1:
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                           FILING DATE:
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nes 46; Conserv
LENGTH: 48
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47; Conserv
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93.9%;
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93.9%;
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95.9%;
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Pred. No. 2.9e-28;
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Pred. No. 4.7e-29;
0; Mismatches 2
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RESULT 10
US-08-447-175A-13
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US-08-796-598-13
Sequence 13, Application US/08447175A
Patent No. 5869240
GENERAL INFORMATION:
APPLICANT: PATTERSON, DALE H.
TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING
                                                                                                                                                                                                                              Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                         REGISTRATION NUMBER: 33,693
REFERENCE/DOCKET NUMBER: SYP-115
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: FLYNN ESG., Kerry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPOTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
STRANDEDNESS: single
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: PATTERSON, DALE H.
APPLICANT: TARR, GEOORGE E.
TITLE OF INVENTION: METHODS AND APPARATUS FOR SEQUENCING
TITLE OF INVENTION: POLYMERS USING MASS SPECTROMETRY.
                                                                                                                                                                                                                                                                         TOPOLOGY: 11
MOLECULE TYPE:
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CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 08/446,055 FILING DATE: 19-MAY-1995
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CITY: Boston
                                                                                                                                                                                                               Local Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/08/796,598 FILING DATE: 07-FEB-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Patent Administrator - Testa, Hurwitz ADDRESSEE: Thibeault
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NUMBER: 33,693
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100.0%;
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91.8%;
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Pred. No.
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Pred. No. 5.8e-26;
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Patent No.
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/08/447
FILING DATE: 19-MAY-1995
CLASSIFICATION: 422
ATTORNEY/AGENT INFORMATION:
NAME: RAUSCHENBACH, KUTL
REGISTRATION NUMBER: 40,137
REFERENCE/DOCKET NUMBER: SYP-
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                    COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                          APPLICANT: Martin, Frank
APPLICANT: Danilenko, Dimitry
APPLICANT: Danilenko, Dimitry
TITLE OF INVENTION: A FIBROBLAST GROWTH FACTOR
NUMBER OF SEQUENCES: 33
CORRESPONDENCE ADDRESS:
                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear MOLECULE TYPE: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
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ATTORNEY/AGENT INFORMATION
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 13 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                        STREET: 1840 DeHavilland Drive CITY: Thousand Oaks
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ADDRESSEE: Thibeault, LLP
STREET: High Street Tower, 125 High Street
                 CLASSIFICATION: 435
                                     FILING DATE:
                                                   APPLICATION NUMBER:
                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                        STATE: California
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o. 5998170
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linear
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0.00063
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                                                                                                    ; MOLECULE TYPE: protein US-08-881-037-112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-881-037-112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 112, Application US/08881037
Patent No. 6080588
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                  Matches
                                                                                                                                                                                                                                         NAME: KONSKI, Antoinette F.
REGISTRATION NUMBER: 34,202
REFERENCE/DOCKET NUMBER: 2034
TELECOMMUNICATION INFORMATION:
TELEPHONE: (650) 813-5600
TELEFAX: (650) 494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 805.447.1090
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FC-DOS/MS-DOS
OPERATING SYSTEM: FC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION: TELEPHONE: 805.447.4112
                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 530 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Glick, Gary D.
APPLICANT: Swanson, Patrick C.
TITLE OF INVENTION: DNA BINDING ANTIBODIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                      TYPE: ami
TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match 26.8%; Score 76; DB 2; L
Local Similarity 100.0%; Pred. No. 0.00063;
Nes 13; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
STRANDEDNESS: sin
                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 18-MAY-1995
CLASSIFICATION: 530
                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/881,037 FILING DATE: 23-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Morrison & Foerster STREET: 755 Page Mill Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPHONE:
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                                Local Similarity es 13; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 08/443,540
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7 GAPVPYPDPLEPR 19
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                              26.8%; ilarity 100.0%; Conservative
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                                                Score 76; pred. No
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                                mismatches
                              DB 3; Le
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thes 0;
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                                  Indels
                                0;
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RESULT 13
US-08-652-816A-43
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                                                                                 US-08-652-816A-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent No. 30,222.
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Osbourn, JK
APPLICANT: Allen, DJ
APPLICANT: McCafferty, JG
APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 43, Application US/08652816A
  Matches
                                        Query Match
                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PALEMINE SOFTWARE: PALEMIN DATA:
CURRENT APPLICATION NUMBER: US/08
APPLICATION NUMBER: US/08
APPLICATION NUMBER: 23-MAY-1996
                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 43 amino acids
                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                              ATTORNEY/AGENT INFORMATION: NAME: David W. Clough
                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
FILING DATE: 01-JUN-1994
                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER: 1
FILING DATE: 02-DEC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: GB 90
FILING DATE: 23-MAY-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 24-MAR-PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: U.STREET: Chicago
                                                                                                   MOLECULE TYPE:
y Match 26.8%; So
Local Similarity 100.0%; F
hes 13; Conservative 0;
                                                                                                                                                                                                                                                                        NAME: David W. Clough
REGISTRATION NUMBER: 36,107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: GB 9: FILING DATE: 07-DEC-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: GB 9 FILING DATE: 02-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: GB 9 FILING DATE: 02-DEC-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                       TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE:
                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER:
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                                                                                                                                                        43 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E: Marshall, O'Toole, Gerstein, Murray & 6300 Sears Tower, 233 South Wacker Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    United States of America
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PatentIn Release #1.0, Version #1.25 (EPO)
                                                                                                                                                                                                                     312-474-6300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TUMBER: GB 9206372.6
23-SEP-1992
                                                                                                   protein
                                                                                                                                                                                                                                                                                                                                                                                               02-DEC-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     24-MAR-1992
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                      Score 76; DB 2; 
; Pred. No. 0.0027;
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    Mismatches
                                        Length 43;
    Indels
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23 GAPVPYPDPLEPR 35

RESULT 14 US-09-142-974B-5

Sequence 5, Application US/09142974B Patent No. 6451995

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SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 5
LEWGTH: 13
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 15
US-08-677-010-3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Cheung, Nai-Kong V.
APPLICANT: Larson, Steven M.
APPLICANT: Guo, Hong-Fen
APPLICANT: Rivlin, Ken
APPLICANT: Sadelain, Michel
TITLE OF INVENTION: Single Chain FV Constructs of
TITLE OF INVENTION: Antibodies
FILE REFERENCE: MSK.P-013-USNP
CURRENT APPLICATION NUMBER: US/09/142,974B
CURRENT FILING DATE: 1998-09-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 23.9%;
Best Local Similarity 92.3%;
Matches 12; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3, Application US/08677010 Patent No. 5925805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
FILING DATE:
CLASSIFICATION: 800
ATTOREY/AGENT INFORMATION:
ATTOREY SMITH, DEARN F.
REGISTRATION NUMBER: 36683
REFERENCE/DOCKET NUMBER: 6550
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: PCT/US97/04427
PRIOR FILING DATE: 1997-03-20
PRIOR APPLICATION NUMBER: 60/013,703
PRIOR FILING DATE: 1996-03-20
NUMBER OF SEQ ID NOS: 5
                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Ohlrogge, John B.
APPLICANT: Roesler, Keith R.
APPLICANT: Shorrosh, Basil S.
                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Harness, Dickey & Pierce, P.L.C. STREET: P.O. Box 828
CITY: Bloomfield Hills
STATE: Michigan
                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                      COUNTRY: U.S.A. ZIP: 48303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 GAPVPVPDPLEPR 13
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                                                                                                                                                                                                                                                                                                                                                                                                                                                               Structure and Expression of Arabidopsis Acetyl-coenzyme
                                                                                                                                                     US/08/677,010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                        6550-00002CPA
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A Carboxylase Gene
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                                                                                               ; MOLECULE TYPE: protein US-08-677-010-3
                              Query Match 22.2
Best Local Similarity 27.5
Matches 14; Conservative
                                                                                                                                                                                            TELEPHONE: (810)641-0270
TELEFAX: (810)641-0270
INFORMATION FOR SEQ ID NO: 3
SEQUENCE CHARACTERISTICS:
                                                                                                                               TYPE: amino acid
STRANDEDNESS: un
TOPOLOGY: unknow
1 YLYQWLGAPVPYPDPLEPRREVCELNPD--CDELADHIGFQEAYRRFYGPV
                                                                                                                                                                             LENGTH:
                                                                                                                                                                              2254 amino acids
                                                                                                                                 unknown
                                                                                                                                                unknown
                                                22.2%; Score 63; DB 2; 27.5%; Pred. No. 17;
                                                                                                                                                                                                                <u>..</u>
                                   12;
                                   Mismatches
                                   23;
                                                                 Length 2254;
                                   Indels
                                   2
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Search completed: December 4, 2002, 15:34:55
Job time: 15 secs

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1818 YIPAYVGGPLPVLAPLDPPERIVEYVPENSCDPRAAIAGVKDNTGKWLGGI 1868

Gaps

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GenCore version 5.1.3
Copyright (c) 1993 - 2002 Compugen Ltd.
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Run on: OM protein - protein search, using sw model Title: December 4, 2002, 15:38:50; Search time 144 Seconds (without alignments) 219.388 Million cell updates/sec US-09-462-931-2 49

Scoring table: OLIGO Gapop 60.0 , Gapext 60.0

Sequence:

1 YLYQWLGAPVPYPDPLEPRR......DELADHIGFQEAYRRFYGPV 49

Perfect score:

Searched: 4569144 segs, 644733110 residues

Word size :

Total number of hits satisfying chosen parameters: 4569144

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Listing first 45 summaries

Database : Pending_Patents_AA_Main:* // Cgn2_6/ptodata/1/paa/US06_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US07_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US080_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US081_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US081_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US083_COMB.pep:*
// Cgn2_6/ptodata/1/paa/US083_COMB.pep:*

/ Ggn2_6/ptodata/1/paa/US085_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US086_COMB.pep: *
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/ Ggn2_6/ptodata/1/paa/US087_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US088_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US090_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US090_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US091_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US091_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US092_COMB.pep: *
/ Ggn2_6/ptodata/1/paa/US093_COMB.pep: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

6	5	4	ω	2	1	Result
49	49	49	49	49	49	Score
100.0	100.0	100.0	100.0	100.0	100.0	Query Match Length DB ID
100	98	86	49	49	49	Length
۲	σ	w	25	18	_	DB
1 PCT-US01-08655-186	US-08-246-626-5	US-07-717-811A-5	US-10-197-954-108	US-09-462-931-2	PCT-US02-22821-108	DB ID
Sequence 186, App	Sequence 5, Appli	Sequence 5, Appli	Sequence 108, App	Sequence 2, Appli	Sequence 108, App	Description

Query Match

100.0%; Score 49;

DB 1;

Length 49;

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13	1	, L	٠.	13	13	13	13	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	20	20	22	25	25	25	28	28	28	40	40	40	42	49	49	49
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13	<u>.</u>	J (2	13	13	13	13	13	13	13	13	76	76	76	76	76	74	74	74	74	. 74	15	15	21	21	140	49	47	46	49	49	49	42	42	42	42	127	127	100
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US-09-801-968-21	-03-03/-2/0-	-00-657-376	-09-5/0-119-	-09-536-556-	US-09-341-590-44	US-09-011-563-9	US-08-844-462-13	9	ż	30312-	-19843-1	3-493-218	3-471-218	-09-962-756-	30412-218	PCT-US02-30312-2182	US-10-253-493-2134	US-10-253-471-2134	US-09-962-756-2134	PCT-US02-30412-2134	PCT-US02-30312-2134	-246-626-1	-07-717-811A-	-08-246-626-1	US-07-717-811A-10	-US01-08	-08-973-667-4	-09-657-276-109	-09-657-276-	-08-973-667-	-08-973-667-	-08-973-	9-840-50	US-60-163-123-1219	US-60-160-203-3372	US-09-036-085-5	-10-217-651-3	US-10-143-899-23	PCT-US01-12010-3
Sequence 21, Appl	sequence Toso, Ap	בָּ	<u>ر</u>	equence 9, 1	44,	9, 1	e 13	Sequence 6, Appli	220	Sequence 2205, Ap	14,	2182,	2182,	e 2182,		2182, A	2134,	2134,	Sequence 2134, Ap	2134,	2134	12,	12,	10,	10, /	478,	4, App	1093,	100	equence 3,	equence 2,	e 1, App	e 5089,	Sequence 1219, Ap	3372,	5, Ap	336,	e 23	Sequence 3, Appli

ALIGNMENTS

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TITLE OF INVENTION: Isolated osteocalcin fragments
FILE REFERENCE: Isolated osteocalcin fragments
CURRENT APPLICATION UNMBER: US/09/462,931
CURRENT FILING DATE: 2000-01-18
PRIOR APPLICATION NUMBER: PCT/FI98/00550
PRIOR FILING DATE: 1998-06-24
PRIOR APPLICATION NUMBER: FI 973371
PRIOR APPLICATION NUMBER: FI 973371
PRIOR FILING DATE: 1997-08-15
NUMBER OF SEQ ID NOS: 4
SOFTWARE: Patentin Ver: 2.1
SEQ ID NO 2
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US-10-197-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; FEATURE:
, NAME/KEY: peptide
; LOCATION: (1)..(49)
; OTHER INFORMATION: Glu at residues 17, 21 and 24 may be gamma-carboxy-Glu US-09-462-931-2
                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-197-954-108
                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: K"ster, Hubert
                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 108, Application US/10197954
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                                                                   SEQ ID NO 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
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                                                                                                                  PRIOR APPLICATION NUMBER: 60/306,019
PRIOR FILING DATE: 2001-07-16
PRIOR APPLICATION NUMBER: 60/314,123
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR FILING DATE: 2002-03-11
                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: HELLMAN,
                                LENGTH: 49
TYPE: PRT
                                                                                     SOFTWARE: FastSEQ
                                                                                                     PRIOR FILING DATE: 20
NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/10/197,954
CURRENT FILING DATE: 2002-07-16
                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Capture Compounds, Collections Thereof TITLE OF INVENTION: And Methods For Analyzing The Proteome TITLE OF INVENTION: Compositions
                                                                                                                                                                                                                                                                                                                                   APPLICANT:
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                                                                                                                                                                                                                                                                FILE REFERENCE: 24743-2305
   ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 49
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
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: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
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                                                                                                                                                                                                                                                                                                                                  Little, Daniel
                                                                                                                                                                                                                                                                                                                                                  Siddiqi,
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PETTERSSON, Kim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTVGREN, Timo
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
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                                                                                     for Windows Version 4.0
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Pred. No.
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hes 0;
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hes 0;
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RESULT 4
US-07-717-811A-5
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 19910619
              FEATURE:
                                        POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek Jr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25
                                                                                                                                                                                                                                                      FRAGMENT TYPE: ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                            ORGANELLE:
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                    ANTI-SENSE:
                                                                                                                                                                                                                                                                                              HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                           MOLECULE TYPE:
                                                                                                                                      CELL TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM CON
OPERATING SYSTEM:
SOFTWARE: Display
                                                                                                                                                                                                                                                                                                                                     TYPE: AMINO P
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
NAME/KEY:
                            UNITS:
                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: 202-371-88
TELEFAX: 202-371-8856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Warren M. Cheek Jr. REGISTRATION NUMBER: 33,3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Washington
                                                                                    CLONE
                                                                                                  LIBRARY:
                                                                                                                                                                      TISSUE TYPE:
                                                                                                                                                                                   HAPLOTYPE:
                                                                                                                                                                                               DEVELOPMENTAL STAGE:
                                                                                                                                                                                                               INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
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                                                                                                                                                                                                                                                                                                                                                                  98 amino acids
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805 Fifteenth Street, N.W., #700
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             19910619
                                                                                                                                                                                                                                                                                                                                          double
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Pred. No. 1.1e-44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                inch, 500
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ORGANISM:

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; DOCUMENT NUMBER:
; FILING DATE:
; PUBLICATION DATE:
; RELEVANT RESIDUES IN SEQ ID
US-07-717-811A-5
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Matches
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                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/246,626
FILING DATE: 20-MAY-1994
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
                                                                                                                                                   INFORMATION FOR SEQ ID NO:
TOPOLOGY: line
MOLECULE TYPE:
HYPOTHETICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                   APPLICATE: 05-OCT-1993
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek Jr.
NAME: Warren M. Warren M. Cheek Jr.
                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: DisplayWrite CURRENT APPLICATION DATA:
                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: PUBLICATION INFORMATION:
                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER:
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                                                                                                                                                                                 TELEFAX: 202-371-8856
                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                       OPERATING SYSTEM:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DATE:
                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
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                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IDENTIFICATION METHOD
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                                                                                                    amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
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805 Fifteenth Street, N.W., #700
                                                                                                                                                                                                                                                                                                                                                                                                                                     PE: Diskette, 5.
IBM Compatible
SYSTEM: MS-DOS
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                                                                            linear
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20-мау-1994
N. E??
                                                                                          double
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Pred. No. 2.1e-44;
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CURRENT APPLICATION NUMBER: PCT/USO1/08655
CURRENT FILING DATE: 2001-04-16
PRIOR APPLICATION NUMBER: 09/522,929
PRIOR FILING DATE: 2000-04-18
PRIOR APPLICATION NUMBER: 09/770,160
PRIOR FILING DATE: 2001-01-26
PRIOR APPLICATION NUMBER: 09/688,317
PRIOR FILING DATE: 2000-09-22
PRIOR FILING DATE: 2000-09-2
PRIOR APPLICATION NUMBER: 09/695,783
PRIOR APPLICATION NUMBER: 09/728,628
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                               NUMBER: CUST
SOFTWARE: CUST
SEQ ID NO 186
SONGTH: 100
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TITLE OF INVENTION: NOVEL MACROPHAGE NUCLEIC ACIDS AND POLYPEPTIDES
FILE REFERENCE: 21272-065
                                                                                                                    PRIOR APPLICATION NUMBER: 09/783,066
PRIOR FILING DATE: 2001-02-13
PRIOR APPLICATION NUMBER: 09/816,828
                                                                                       NUMBER OF SEQ ID NOS: 584
                                                                                                        PRIOR FILING DATE:
                     TYPE: PRT
ORGANISM: Homo sapiens
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OTHER INFORMATION:
PUBLICATION INFORMATION:
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IMMEDIATE SOURCE:
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CHROMOSOME/SEGMENT:
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CELL TYPE:
CELL LINE:
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PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID
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US-10-143-899-23
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PCT-US01-12010-3
                                          US-10-143-899-23
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APPLICANT: Bentivegna,
APPLICANT: Chew, Anne
APPLICANT: Chol, Julie
APPLICANT: Koshy, Beena
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Query Match
Best Local Similarity
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TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PT247ClN
                                                                                                                                                                                                                              SOFTWARE: PatentIn Ver.
                                                                                                                                                                                                                                         Prior Application removed - NUMBER OF SEQ ID NOS: 30
                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: US/10/143,899
CURRENT FILING DATE: 2002-05-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: PCT/US01/12010
CURRENT FILING DATE: 2001-04-11
PRIOR APPLICATION NUMBER: 60/195,840
PRIOR FILING DATE: 2000-04-11
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TITLE OF INVENTION: Haplotypes of the BGLAP Gene
FILE REFERENCE: MWH-0512PCT BGLAP
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TYPE: PRT
                                                COTHER INFORMATION: Xaa equals any
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NAME/KEY: misc_feature
LOCATION: (18)
OTHER INFORMATION: Xaa equals any
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                                                                              NAME/KEY: misc_feature
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TYPE: PRT
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Rounds, Eileen
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PRIOR FILING DATE: 2000-10-20
PRIOR PADICIATION UNDERS: 60/244,617
PRIOR FILING DATE: 2000-11-01
PRIOR FILING DATE: 2000-12-68
PRIOR FILING DATE: 2000-08-16
PRIOR FILING DATE: 2000-09-25
PRIOR PAPLICATION UNDERS: 60/251,68
PRIOR FILING DATE: 2000-09-25
PRIOR APPLICATION UNDERS: 60/251,43
PRIOR APPLICATION UNDERS: 60/251,43
PRIOR FILING DATE: 2000-09-25
PRIOR PAPLICATION UNDERS: 60/229,34
PRIOR PAPLICATION UNDERS: 60/229,51
PRIOR APPLICATION UNDERS: 60/229,51
PRIOR APPLICATION UNDERS: 60/229,51
PRIOR PAPLICATION UNDERS: 60/239,09
PRIOR PILING DATE: 2000-09-05
PRIOR PILING DATE: 2000-10-02
PRIOR PILING DATE: 2000-10-03
PRIOR PILING DATE: 2000-10-13
PRIOR PILING DATE: 2000
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FILING DATE: 2000-09-14
APPLICATION NUMBER: 60/
FILING DATE: 2000-09-14
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FILING DATE: 2000-09-08
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FILING DATE: 2000-11-17
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FILING DATE: 2000-08-14
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1-17
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  60/233,065
                                                    60/246,475
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밁 Ş Query Match Best Local Matches 79 \vdash Match ch 100.0%; similarity 100.0%; 49; Conservative (ç, Score 49; DB 26; Pred. No. 2.6e-44; ; Mismatches 0; Length Indels 127; 0 Gaps

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                                                                 ; TYPE: PRT
; ORGANISM: HUMAN
US-60-160-203-3372
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US-60-160-203-3372
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Best Local Similarity 100.
                                                                                                                                  NUMBER OF SEQ ID NOS: 6374
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 3372
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   Matches
                                 Query Match
                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                 FILE REFERENCE: CL000116
CURRENT APPLICATION NUMBER: US/60/160,203
CURRENT FILING DATE: 1999-10-19
                                                                                                                                                                                                                                    APPLICANT: BONAZZI, VIVIEN
TITLE OF INVENTION: ISOLATED HUMAN SECRETED PROTEINS.
TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING I
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                                                                                                                    ENGTH: 42
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: UMM-007
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
TELEFAX: (617)742-4214
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APPLICATION NUMBER: PROVIS
FILING DATE: March 6, 1997
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LENGTH: 42 amino acids
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Gary S. Stein et al.
TITLE OF INVENTION: Gene Therapy Using Bone Marrow Transplants Transfected With T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STREET:
CITY: E
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OPERATING SYSTEM: PC-DOS/MS-DOS
                 Local Similarity
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100.0%; Pr
                 81.6%;
100.0%;
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 0;
               Score 40;
Pred. No.
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Pred. No.
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3.1e-37;
                 4.4e-35
                                   DB 27;
                                                                                                                                                                                                                                                      ENCODING HUMAN SECRETED PROTEINS AND
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RESULT 14
US-08-973-667-1
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, Sequence 5089, Application (

; GENERAL INFORMATION:

; APPLICANT: Bonazzi, Vivien
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 5089
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SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 1219
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GENERAL INFORMATION:
APPLICANT: BONAZZI, Vivien
                                                                                                                                                                                                                                                                                                                        Query Match 81.6%;
Best Local Similarity 100.0%;
Matches 40; Conservative
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Best Local Similarity
Matches 40; Conserv
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CURRENT APPLICATION NUMBER: US/60/169,840
CURRENT FILING DATE: 1999-12-09
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CURRENT APPLICATION NUMBER: US/60/163,123
CURRENT FILING DATE: 1999-11-02
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TYPE: PRT
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                           APPLICANT: MORIMOTO, STIGETO
TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
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                    ADDRESSEE:
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E: NIXON & VANDERHYE P.C.
1100 North Glebe Rd. 8th floor
                                                                                                                        Sakakibara, Shunpei
                                                                                                      Kimura, Terutoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/60169840
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Pred. No.
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4.4e-35;
thes 0;
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COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk

22201-4741

COUNTRY:

USA

COMPUTER: IBM PC OPERATING SYSTEM:

IBM PC compatible SYSTEM: PC-DOS/MS-DOS

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                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
NAME/KEY:
LOCATION:
                                                                                                                                                                                                            APPLICANT: APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION: TELEPHONE: 703-816-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: JP 8-88608
FILING DATE: 10-APR-1996
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 9-43331
                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
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                                                                                                                                                   CORRESPONDENCE ADDRESS:
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                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                               TITLE OF
                                                                                                                                                                                               \PPLICANT:
                                                                                                                                                                                                                                                                                                                                                 22 VCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 10-DEC CLASSIFICATION: 439
                                                                                                                  STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 25,327 REFERENCE/DOCKET NUMBER: 42
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                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                 22 VCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LENGTH:
                                                           22201-4741
                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                    Arlington
                                                                                                                                                                                 INVENTION:
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                                                                                                                     1100 North Glebe Rd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49 amino acids
                                                                         USA
                                                                                                                                                                               MORIMOTO, Shigeto
WENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                            Sakakibara, Shunpei
Kimura, Terutoshi
                                                                                                                                                                                                                                                                                                                                                                                             Conservative
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                                                                                                                                  NIXON & VANDERHYE P.C.
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                                                                                                                     8th floor
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Best Local Similarity
Matches 28; Conserv
                                                                                                                                                                                                                                                                                                                               Sequence 3, Application GENERAL INFORMATION
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COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/973,667
FILING DATE: 10-DEC-1997
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APPLICATION NUMBER: PCT/JP97/01246
FILING DATE: 10-APR-1997
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ORIGINAL SOURCE:
                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
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                                                                                                                                                  COUNTRY:
                                                                                                                                                                                 CITY: Arlington
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OTHER INFORMATION: /product= "Gla"
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OTHER INFORMATION:
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STREET: 1100 North Glebe Rd. 8th floor
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10-APR-1996
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10-DEC-1997
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Pred. No.
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Gaps

PRIOR APPLICATION DATA:

APPLICATION NUMBER:

JP 8-88608

CLASSIFICATION: 43
IOR APPLICATION DATA
APPLICATION NUMBER:

FILING DATE:

10-APR-1997

PCT/JP97/01246

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; OTHER INFORMATION: /product- "Gla"
US-08-973-667-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 17
US-09-657-276-1095
                                                                                              PRIOR APPLICATION NUMBER: 60/13-
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/15-
PRIOR FILING DATE: 1999-09-10
PRIOR APPLICATION NUMBER: 60/15-
PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
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Best Local S
Matches 28
                                  NUMBER OF SEQ ID NOS:
SOFTWARE: PatentIn Ves
SEQ ID NO 1095
LENGTH: 46
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                                                                                                                                                                                                                                                                                              APPLICANT: Holmes, Darren
APPLICANT: Thibaudeau, Karen
APPLICANT: Thibaudeau, Karen
TITLE OF INVENTION: PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
TITLE OF INVENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
TITLE OF INVENTION: COMPONENTS
                                                                                                                                                                                                                                       FILE REFERENCE: 2110
CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
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                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
ORGANISM: Artificial Sequence
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FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Crawford, Arthur R.
REGISTRATION NUMBER: 25,327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION: TELEPHONE: 703-816-4000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 49 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
LOCATION:
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REFERENCE/DOCKET NUMBER: 423-43
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STRANDEDNESS:
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                                                                             PatentIn Ver. 2.1
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Ezrin, Alan
                                                                                                                                                                                                                                                                                                                                                                                                Milner, Peter
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                                                                                                                                                                                                                  60/134,406
                                                                                                                                       60/159,783
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; OTHER INFORMATION: Description of Artificial Sequence: Synthetic; OTHER INFORMATION: Peptide US-09-657-276-1095
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Best Local Similarity
Thes 25; Conserva
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; OTHER INFORMATION:
US-09-657-276-1093
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Best Local S
Matches 25
                                                                                                                                                                                                                                Sequence 4, Application US/08973667 GENERAL INFORMATION:
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CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
PRIOR APPLICATION NUMBER: 60/134,406
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/153,406
PRIOR FILING DATE: 1999-09-10
PRIOR FILING DATE: 1999-09-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 60/159,783
PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
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TITLE OF INVENTION:
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TYPE: PRT
ORGANISM: Artificial Sequence
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                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
COUNTRY: USA
ZIP: 22201-4741
COMPUTER READABLE FORM:
                                                                                  NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
ADDRESSEE: NIXON & VANDERHYE P.C.
STREET: 1100 North Glebe Rd. 8th floor
                                                                                                                                                            APPLICANT: Morimoto, Shigeto
FITLE OF INVENTION: ANTI-GLU17-OSTECCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                                                25 LNPDCDELADHIGFQEAYRRFYGPV 49
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Local Similarity 100.0%; S
Les 25; Conservative 0;
                                                                     CITY: Arlington
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Holmes, Darren
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bridon, Doma
Ezrin, Alan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conjuchem, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/09657276
                                                                                                                                                                                                                   Sakakibara, Shunpei
                                                                                                                                                                                               Kimura, Terutoshi
                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Description of Artificial Sequence: Synthetic Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
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100.0%; Pred. No.
tive 0; Mismatc
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0; Mismatches
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3. 6.7e-19;
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6.9e-19
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COMPUTER: IE

Floppy disk

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PCT-US01-08655-478
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                                                                                                                                                                                                Sequence 478, Application PC/TUS0108655 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                        APPLICANT: Hyseq, Inc
TITLE OF INVENTION: NOVEL MACROPHAGE NUCLEIC ACIDS AND POLYPEPTIDES
FILE REFERENCE: 21272-065
CURRENT APPLICATION NUMBER: PCT/US01/08655
CURRENT FILING DATE: 2001-04-16
PRIOR APPLICATION NUMBER: 09/522,929
PRIOR APPLICATION NUMBER: 09/770,160
PRIOR PLIING DATE: 2001-01-26
PRIOR EILING DATE: 2001-01-26
PRIOR EILING DATE: 2001-01-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 703-816-4100
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 42:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 703-816-4000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: JP 9--
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Crawford, Arthur R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
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OTHER INFORMATION: /proc
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APPLICATION NUMBER: 09/668,317
FILING DATE: 2000-09-22
APPLICATION NUMBER: 09/695,783
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100.0%; Pro
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Pred. No.
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7.2e-19
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US-07-717-811A-10
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LENGTH: 140
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PRIOR APPLICATION NUMBER: 09/816,828
PRIOR FILING DATE: 2001-03-22
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                                                                                                                                                       INFORMATION FOR SEQ ID NO:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
LOCATION: (1)...(140)
OTHER INFORMATION: Xaa = any amino acid or nothing
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ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
                                             MOLECULE TYPE:
HYPOTHETICAL:
                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 21 amino acids
                                                                                                                                                                                                 TELEPHONE: 202-371-8850
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                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
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CORRESPONDENCE ADDRESS:
                                ANTI - SENSE:
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                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: MS-D
SOFTWARE: DisplayWrite
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                                                                           TOPOLOGY:
                                                                                       STRANDEDNESS:
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                                                                                                                                                                                                                                         Warren M. Cheek Jr.
Warren M. Cheek Jr.
33,367
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                                                                                                                                                                                      202-371-8856
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                                                                             linear
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Pred. No.
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; FILING DATE:
; PUBLICATION DATE:
; RELEVANT RESIDUES IN SEQ ID
US-07-717-811A-10
                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-246-626-10
                                                                                                                                                                                                                                                                                                                                                                                               Sequence 10, Applicat
GENERAL INFORMATION:
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                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
                                                                                                                                                   SOFTWARE: DisplayWrite CURRENT APPLICATION DATA:
              APPLICATION NUMBER: US 08/131,932 FILING DATE: 05-OCT-1993 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                               COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 1
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Hiroshi EGUCHI et al. TITLE OF INVENTION: Recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PUBLICATION INFORMATION:
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IMMEDIATE SOURCE:
                                                                                                                                                                   COMPUTER: IBM Compatible OPERATING SYSTEM: MS-DOS SOFTWARE: DisplayWrite
                                                                                                                                                                                                                                                                         STREET: 805 Fifte
CITY: Washington
STATE: D.C.
                                                                                                                       APPLICATION NUMBER: US/08/246,626 FILING DATE: 20-MAY-1994
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                                                                                                         CLASSIFICATION:
                                                                                                                                                                                                                 MEDIUM TYPE:
                                                                                                                                                                                                                                                             COUNTRY: U.S.A.
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20; Conservative
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805 Fifteenth Street, N.W., #700
                                                                                                                                                                                                                  Diskette,
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Pred. No.
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                                               RESULT 23
US-07-717-811A-12
Sequence 12, Application US/07717811A
GENERAL INFORMATION:
APPLICANT: Hiroshi EGUCHI et al.
TITLE OF INVENTION: Recombinant Hum.
NUMBER OF SEQUENCES: 14
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
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DATE:
ADDRESSEE: Wenderoth, Lind & Ponack STREET: 805 Fifteenth Street, N.W., #700 CITY: Washington STATE: D.C.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS:
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US-08-246-626-10
                                                             Query Match
Best Local Similarity
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SEQUENCE CHARACTERISTICS:
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                                                                                                                                                                                                                                                             OTHER INFORMATION: PUBLICATION INFORMATION:
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ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                         IMMEDIATE SOURCE:
LIBRARY:
                                                                                                                                                                                                                                                                                                                                                                                POSITION IN GENOME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANTI-SENSE:
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                                                                                                                DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES I
                                                                                                                                                                                                                                                                                                                                                                                                                                              CELL TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: amino acid
STRANDEDNESS: sir
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                      CHROMOSOME/SEGMENT: MAP POSITION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: 202-371-8856
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TISSUE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM:
                                                                                                                                                                                                                                                                                       IDENTIFICATION METHOD:
                                                                                                                                                                                                                                                                                                      LOCATION:
                                                                                                                                                                                                                                                                                                                 NAME/KEY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER:
            1 YLYQWLGAPVPYPDPLEPRR 20
1 YLYQWLGAPVPYPDPLEPRR 20
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                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                single
                                           40.8%; 5-
100.0%; Pro
                                                                                                                   IN SEQ ID
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                                                             Score 20; pred. No.
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                                                   Mismatches
                                                              DB 6; Le 7.6e-14;
                                                                         Length 21;
                                                   Indels
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                                                Gaps
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Recombinant Human Osteocalcin

COUNTRY: U.S.A.

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                                                                           ; FILING DATE:
; PUBLICATION DATE:
; RELEVANT RESIDUES IN SEQ ID
US-07-717-811A-12
                          Matches
                                                  Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                    IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION: NAME: Warren M. Cheek Jr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: DisplayWrite CURRENT APPLICATION DATA:
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MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                         POSITION IN GENOME:
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                       Local Similarity 100 nes 14; Conservative
                                                                                                                                                                                                                                                                            NAME/KEY:
36 IGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                               CHROMOSOME/SEGMENT: MAP POSITION:
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FILING DATE: 19910619
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                                                                                                                              DOCUMENT NUMBER:
                                                                                                                                                                                                                         AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              APLOTYPE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                               JOURNAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H: 15 amino acids
AMINO ACID
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                    28.6%; Sc.
100.0%; Pr
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                                      Score 14;
Pred. No.
                                                                                         NO:
                          Mismatches
                                    DB 3; I
1.6e-07;
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                                               Length 15;
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US-08-246-626-12
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
FILING DATE: 05-OCT-1993
ATTONNEY/AGENT INFORMATION:
NAME: WALTEN M. Cheek JI.
REGISTRATION NUMBER: 33,367
                                                                                                                                                                                            CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: 11
MOLECULE TYPE:
HYPOTHETICAL:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
                                                                              UNITS: FEATURE:
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CHROMOSOME/SEGMENT:
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ORIGINAL SOURCE:
ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 15 amino acids
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MEDIUM TYPE: Diskett
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ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., $700
                                                                                                                                                                                                                                                                                                                                                                                              ANTI-SENSE:
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                                               NAME/KEY:
LOCATION:
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CITY: Washington
STATE: D.C.
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                                                                                                                MAP POSITION:
                                                                                                                                                                                                                                                             TISSUE TYPE:
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WENTION: Recombinant Human Osteocalcin
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IBM Compatible
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                                                                                  PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: PATENTIN Ver. 2.1
SEQ ID NO 2134
LENGTH: 74
                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: NOVO NORDISK A/S et al.
APPLICANT: NOVO NORDISK A/S et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4056PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2134
LENGTH: 74
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: NOVO NORDISK A/S et al. TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS FILE REFERENCE: 1878-4057PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: PCT/US02/30312 CURRENT FILING DATE: 2002-09-24
OTHER INFORMATION: Description of Artificial Sequence: Synthetic OTHER INFORMATION: peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: PRT
                                        FEATURE:
                                                     ORGANISM: Artificial Sequence
                                                                          TYPE: PRT
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FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                            61 LGAPVPYPDPLEPR 74
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                                                                                                                                                                                                                                                                                                                                                                                                                             6 LGAPVPYPDPLEPR 19
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100.0%;
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Pred. No.
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                                                                                        CURRENT APPLICATION NUMBER: US/10/253,471
CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1998-09-02
NUMBER OF SEQ ID NOS: 2227
                                                                                                                                                                                                                                                                                                                                                        US-10-253-471-2134
                                                                                                                                                                                                                                                                                                                                                                              RESULT 28
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SEQ ID NO 2134
LENGTH: 74
                                                                                                                                                                                                                                                          Sequence 2134, Application US/10253471
GENERAL INFORMATION:
APPLICANT: PILLUTLA, RENUKA et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 14
                               SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 2134
LENGTH: 74
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APPLICANT: HANSEN, PER HERT2
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4051US1
CURRENT APPLICATION NUMBER: US/09/962,756
CURRENT FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR FILING DATE: 2000-03-29
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PRIOR FILING DATE: 1998-09-02
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ORGANISM: Artificial Sequence
                     TYPE: PRT
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BLUME, ARTHUR J.
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7.3e-07;
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                                                                                                                                PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: PATENTIN Ver. 2.1
SEQ ID NO 2182
LENGTH: 76
TYPE: PRT
                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: NOVO NORDISK A/S et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057PC
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GENERAL INFORMATION:
APPLICANT: PILLUTLA, RENUKA et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4056
Query Match
Best Local Similarity
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SEQ ID NO 2134
LENGTH: 74
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PRIOR FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 09/146,127
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CURRENT FILING DATE: 2002-09-24
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NUMBER OF SEQ ID NOS: 2227
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OTHER INFORMATION: peptide
                                                              OTHER INFORMATION: Description OTHER INFORMATION: peptide
                                                                                                ORGANISM: Artificial Sequence FEATURE:
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; OTHER INFORMATION: Description of Artificial Sequence: ; OTHER INFORMATION: peptide US-09-962-756-2182
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SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2182
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LENGTH: 76
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CURRENT FILING DATE: 2002-09-24
PRIOR APPLICATION NUMBER: 09/962,756
PRIOR FILING DATE: 2001-09-24
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APPLICANT: HANSEN, PER HERTZ
TITLE OF INVERTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4051US1
                                                                                                                                          LENGTH: 76
TYPE: PRT
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PRIOR FILING DATE: 1998-09-02
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                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-03-29
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BLUME, ARTHUR J.
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SPETZLER, JANE
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US-10-253-493-2182
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GENERAL INFORMATION:
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SEQ ID NO 2182
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PRIOR FILING DATE: 2001-09-24
PRIOR APPLICATION NUMBER: 09/538,038
PRIOR FILING DATE: 2000-03-29
PRIOR APPLICATION NUMBER: 09/146,127
PRIOR FILING DATE: 1998-09-02
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: PILLUTLA, RENUKA et al. TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS FILE REFERENCE: 1878-4056
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PRIOR FILING DATE: 1998-09-02
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
150 ID NO 2182
LENGTH: 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/10/253,493
CURRENT FILING DATE: 2002-09-24
                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 2227
                                                                                                                                                         OTHER INFORMATION: Description of Artificial Sequence: Synthetic OTHER INFORMATION: peptide
                                                                                                                                                                                                                 ORGANISM: Artificial Sequence
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Local Similarity 100.0%;
hes 14; Conservative
                                                         Local Similarity les 14; Conserv
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LGAPVPYPDPLEPR 19
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                                                         28.6%; Score 14; DB ilarity 100.0%; Pred. No. 7. Conservative 0; Mismatches
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                                                                                                DB 26;
                                                           7.5e-07;
hes 0;
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RESULT 37
PCT-USO2-30412-2205
; Sequence 2205, Application PC/TUS0230412
; GENERAL INFORMATION:
; APPLICANT: NOVO NORDISK A/S et al.
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; OTHER INFORMATION: Description of Artificial Sequence: Synthetic; OTHER INFORMATION: peptide
pcr-us02-30312-2205
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; LENGTH: 13
; TYPE: PRT
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LENGTH: 13
TYPE: PRT
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APPLICANT: NOVO NORDISK A/S et al.
APPLICANT: NOVO NORDISK A/S et al.
TITLE OF INVENTION: INSULIN AND IGF-1 RECEPTOR AGONISTS AND ANTAGONISTS
FILE REFERENCE: 1878-4057PC
CURRENT APPLICATION NUMBER: PCT/US02/30312
CURRENT FILING DATE: 2002-09-24
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NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 09/962,756
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                                                                                                                                                                                                                                                                                                                                             ORGANISM: Artificial Sequence
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Pred. No.
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hes 0;
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PRIOR FILING DATE: 2001-09-24
NUMBER OF SEQ ID NOS: 2227
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 2205
LENGTH: 13
                                                                           Query Match
Best Local (
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Best Local Similarity
                                                              Matches
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CURRENT FILING DATE: 2002-09-24
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                                                                                                                                                                                                                                    TELEPHONE: 805.447.41:
TELEFAX: 805.447.1090
INFORMATION FOR SEQ ID NO:
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
LENGTH: 13 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION: TELEPHONE: 805.447.4112
                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Mazza, Richard J.
REGISTRATION NUMBER: 27,657
                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Amgen Inc.
TITLE OF INVENTION: A FIBROBLAST GROWTH FACTOR
NUMBER OF SEQUENCES: 33
                                                                                                                                       TOPOLOGY: 1i
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                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET: 1840 DeHavilland Drive CITY: Thousand Oaks
STATE: California
                                                                                                                                                                                                                                                                                                  REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
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                               GAPVPYPDPLEPR 19
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GAPVPYPDPLEPR 13
                                                                           Similarity
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                                                              Conservative
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                                                                                                                                    peptide
                                                       26.5%; 5cc
100.0%; Pr
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100.0%; Pr
.... 0;
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                                                          Score 13; DB ;; Pred. No. 1.7 0; Mismatches
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                                                     DB 1; L., 1.7e-06; 0;
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US-08-844-462-13
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                                                                                                                                                                                                                                                                          RESULT 40
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                                                                                                                                                          Sequence 9, Application US/09011563
GENERAL INFORMATION:
APPLICANT: Wang, Linfa
TITLE OF INVENTION: EPITOPE TAGGING SYSTEM
FILE REFERENCE: Griffith Hack
                                                                  CURRENT APPLICATION NUMBER: US/09/011,563
CURRENT FILING DATE: 1998-06-15
NUMBER OF SEQ ID NOS: 41
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
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GENERAL INFORMATION:
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                                   TYPE: PRT
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FILING DATE: 07-FEB-1997
APPLICATION NUMBER: US 08/
FILING DATE: 19-MAY-1995
ATTORNEY/AGENT INFORMATION:
NAME: FLYNN ESq., Kerry A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 248-7000
TELEFAX: (617) 248-7100
INFORMATION FOR SEQ ID NO: 13:
                 ORGANISM: Artificial Sequence
FEATURE:
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SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
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LENGTH: 13 amino acids
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MEDIUM TYPE: Floppy disk
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CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: PATTERSON, DALE H. APPLICANT: TARR, GEORGE E.
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TYPE: amino acid
STRANDEDNESS: single
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13; Conserv
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ER: SYP-115
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Pred. No.
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TITLE OF INVENTION: PHARMACOLOGICALLY ACTIVE PEI
TITLE OF INVENTION: REDUCED TENDENCY TOWARDS EN:
FILE REFERENCE: PPT-20479-US
CURRENT APPLICATION NUMBER: US/09/341,590
CURRENT FILING DATE: 1999-07-03
PRIOR APPLICATION NUMBER: DX 0317/98
PRIOR FILING DATE: 1998-03-09
NUMBER OF SEQ ID NOS: 121
COCTUMENT SEQ ID NOS: 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 41
US-09-341-590-44
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                                                                                                                               ; OTHER INFORMATION: Description ; OTHER INFORMATION: sequence US-09-536-556-9
                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 42
US-09-536-556-9
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PASEQ ID NO 44
LENGTH: 13
                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 9, Application US/09536556 GENERAL INFORMATION:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 44,
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Best Local
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SEQ ID NO 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                       APPLICANT: Wang, Linfa
TITLE OF INVENTION: EPITOPE TAGGING SYSTEM
FILE REFERENCE: GRIffith Hack
CURRENT APPLICATION NUMBER: US/09/536,556
CURRENT FILING DATE: 2000-03-28
                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 09/011,563 PRIOR FILING DATE: 1998-06-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: Description of Artificial Sequence: peptide OTHER INFORMATION: sequence
                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 41
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ORGANISM: Homo sapiens
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                                                                                                                                                                                              ORGANISM: Artificial Sequence
                                                                                                                                                                                 FEATURE:
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1 GAPVPYPDPLEPR 13
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Pred. No.
                                                                                                                                                             of Artificial Sequence: peptide
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                                                                                1.7e-06;
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RESULT 43
US-09-540-118-29
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US-09-657-276-1096
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GENERAL INFORMATION:
APPLICANT: Itch, Nobuyuki
TIFLE OF INVENTION: Fibroblast Growth Factor-Like Molecules and Uses Thereof
FILE REFERENCE: 08035.0001-00000
CURRENT APPLICATION NUMBER: US/09/540,118
CURRENT FILING DATE: 2000-03-31
NUMBER OF SEQ ID NOS: 35
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 29
LENGTH: 13
TYPE: PAT
                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 60/13
PRIOR FILING DATE: 1999-05-17
PRIOR APPLICATION NUMBER: 60/15
PRIOR FILING DATE: 1999-09-10
PRIOR APPLICATION NUMBER: 60/15
PRIOR FILING DATE: 1999-10-18
PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
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SOFTWARE: PatentIn Ve
SEQ ID NO 1096
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Best Local S
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Best Local 9
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                                                                                                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: 2110
CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Thibaudeau, Karen TITLE OF INVENTION: PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM TITLE OF INVENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD TITLE OF INVENTION: COMPONENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
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                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: Description of Artificial Sequence:protein
                                                                                                                                                                                                          FEATURE:
                                   37 GFQEAYRRFYGPV 49
                                                                       Local Similarity
les 13; Conser
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GFQEAYRRFYGPV
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Ezrin, Alan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Milner, Peter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conjuchem, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Holmes, Darren
                                                                      26.5%; Score 13; DB 20; ilarity 100.0%; Pred. No. 1.7e-06; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
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1999-05-17
                                                                                                                                                                   Description of Artificial Sequence: Synthetic Peptide
13
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100.0%; Pred. No.
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hes 0;
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Sequence 21. Application US/09801968

GENERAL INFORMATION:
APPLICANT: KANDAUGH, M. Michael
APPLICANT: MONDARE: US00/2013/689

CURRENT PELLE DESCRIPTION: 001/2013/640,0991

CURRENT PELLEMONATE: 2010/07/07

INVESTMENT OF SEO ID NOS: 46

SOFTWARE: PASISED for Windows Version 4.0

SOEMURMS 21

ORGANISM: Artificial Sequence
FEATURE:
OFHER INFORMATION: E tag
US-09-601-668-21

ONEY MICHAEL
BREIT LOCAL SIMIlarity 100.0%: Prod. No. 1.78-06; Indels 0; Gaps 0;

Matches 13; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 GAPVPYPDPLEPR 19

Search completed: December 4, 2002, 15:42:55

Job time: 146 secs
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Perfect score:
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1: /SIDSZ/gcgdata/gc
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length: 2000000000
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Maximum Match 100%
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2: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1981.DAT: *
3: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1982.DAT: *
3: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1983.DAT: *
4: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1984.DAT: *
5: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1985.DAT: *
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7: /SIDSZ/gcgdata/geneseq/geneseqp-embl/AA1987.DAT: *
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Copyright (c) 1993 - 2002 Compugen Ltd
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/SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2002.DAT:*
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AAR10146
AAW76094
AAR10187
AAU10687
AAW34263
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                                                                                                                                  Reference sequence Glu17-osteocalcin
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Human osteocalcin
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AAY58430	AAW04605	AAR06631	AAB46849	AAB46848	AAU88450	AAU88449	AAU88448	AAU88447	AAU88498	AAU88453	AAU88456	AAU88501	AAU88500	AAU88455	AAU88499	AAU88454	AAU88497	AAU88452	AAU88442	AAU88451	AA017841	AAR26407	AAR06630	AAP71282	AAW76096	AAW76095	AAU85975	AAW76097	AAB91919	AAB91917	AAW01681	007 FCMWW
E tag peptide, SE	steocalcin 7-1	Human osteocalcin	Bovine gamma-cryst	Bovine gamma-cryst	Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Ļ	Insulin/insulin-li	Insulin/insulin-li		Insulin/insulin-li	Insulin/insulin-li	Insulin/insulin-li	Ļ		÷	Insulin/insulin-li	-		þ	Osteocalcin AA 1-1	Human osteocalcin	Œ			Modified osteocalc	ocalcin p			Bone Gla protein.	•

ALIGNMENTS

RESULT 1 AAW99811

AAW99811 standard; Protein; 49

B

AAW99811;

Human osteocalcin fragment. 08-JUN-1999 (first entry)

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-(HELLY) HELLMAN J. -> opplicent. 8/15/97
(KAEK) KAEKOENEN S.
                                                                              W09909058-A1
                                                                                                    Modified-site
                                                                                                                 Modified-site
                                                                                                                                                     Homo sapiens.
                                                                                                                                                                  bone turnover;
                                                               25-FEB-1999
                                                                                                                               Modified-site
                                                                                                                                                                 Human; osteocalcin; urine; gamma-carboxylated; bone disorder; hOC;
bone turnover; puberty; menopause; detection.
                                                                                                                               Location/Qualifiers
                                                                                           /note= "possibly gamma-carboxylated"
                                                                                                          /note= "possibly gamma-carboxylated"
                                                                                                                      /note= "possibly gamma-carboxylated"
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RESULT 2
AAR10146
PR PR XX
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Best Local S
Matches 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human osteocalcin found in urine, where the glutamic acid residues at positions 17, 21 and 24 are gamma-carboxylated. The assay is used to measure the rate of bone turnover (formation and/or resorption) and/or for investigating metabolic bone disorders in individuals. Especially mentioned, the assays can detect differences between adults and children going through puberty, pre- and post-menopausal women and children having high bone turnover. The assay allows more sensitive detection of human osteocalcin (hOC) in urine than in serum. Significant increases in hOC (40-48%) were detected in serum in menopause (normal increase is 30-50% above pre-menopausal women). Detection of urine hOC using the assay showed an increase as high as 75-79%. The present sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (PETT/)
(VAEA/)
                                06-DEC-1988;
22-AUG-1989;
                                                                                                                                                                                                                                   Human osteocarcin precursor polypeptide; OC; carboxypeptidase calcium; vitamin K; bone formation; dysbolism.
                                                                                                                                                                                                                                                                      Human
                                                                                                                                                                                                                                                                                                                                        AAR10146 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Fig 1A; 49pp; English.
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          (TAKA-) TAKARA
                                                                   22-AUG-1989;
                                                                                        03-DEC-1990
                                                                                                               JP02201294-A
                                                                                                                                                    Misc-difference
                                                                                                                                                                                                             Homo
                                                                                                                                                                                                                                                                                             27-MAR-1991
                                                                                                                                                                                                                                                                                                                  AAR10146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       An assay has been developed for the detection of gamma-carboxylated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     metabolic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human osteocalcin peptide fragments
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (KARP/)
(LOEV/)
                                                                                                                                                                           Misc-difference
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                                                                                                                                                                                                                                                                                                                                                                                                 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
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DB; AAX19767.
                                                                                                                                                                                                                                                                    osteocarcin
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HK;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                          (first entry)
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                                88JP-0306931.
89JP-0214239.
                                                                   89JP-0214239
                                                                                                                                                   /note=
51..51
                                                                                                                                                                          Location/Qualifiers 1..1
                                                                                                                                        /note=
                                                                                                                                                                                                                                                                    precursor
                                                                                                                                                                                                                                                                                                                                       peptide;
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                                                                                                                                                              "residue may be
                                                                                                                                       "residue may be omitted"
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                                                                                                                                                                                                                                                                    polypeptide (I).
                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 284; DB 20;
Pred. No. 3.7e-30;
Nismatches 0;
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                                                                                                                                                                                                                                                                                                                                          A
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RESULT 3
AAW76094
ID AAW7
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                       Expression of exogenous genes in differentiated cells - by transducing pluripotent stem cells capable of maturing into differentiated cells with nucleic acid comprising exogenous useful for, e.g. treatment of osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 osteoporosis; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW76094 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        human precursor was further treated with carboxy peptidase to prepare a purified human OC.

OC is a calcium bonded protein (depending on vitamin K) produced in the bone. It is thought to be a promoting factor during the bone formation and may be used to treat diseases due to dysbolism of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A novel gene encoding human OC precursor polymer was inserted into plasmid pOC 980. E.coli HB101 was transformed with this plasmid, ar made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim
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purified OC by digestion with carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1991-018865/03
This is the amino acid sequence of from the coding exons of the human
                                                                                                                                                                                                                                                  WPI; 1998-495839/42.
N-PSDB; AAV46429.
                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       06-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Promoter; tissue-specific gene expression; skeletal tissue; stem cell; bone; cartilage; osteocalcin; hOC gene; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAW76094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              To K1 is attached H and to K51 is attached OH.
                                                                            Disclosure;
                                                                                                                                                                                                                                                                                                                              Quesenberry
                                                                                                                                                                                                                                                                                                                                                     Frenkel B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11-SEP-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
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                                                                                                                                                                                                                                                                                                                                                                                                      (UYMA-) UNIV MASSACHUSETTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9839427-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human osteocalcin protein
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                                                                         Page 33-34; 63pp; English.
                                                                                                                                                                                                                                                                                                                            P,
                                                                                                                                                                                                                                                                                                                                                     Hou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          osteopenia; osteosarcoma; cancer;
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                                                                                                                                                                                                                                                                                                                            Z, Li
Stein
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                                                                                                                                                                                                                                                                                                                                                   JB,
                                                                                                                                                                                                                                                                                                                                 Stein JL;
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Pred. No. 3.8e-30;
); Mişmatches 0;
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the
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                            human osteocalcin,
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  deduced). The
                                                                                                                                                   gene,
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gene (see AAV46429).

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RESULT 4
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AARIOLT 1
AARIOLT 1
AC AARI
AC AARI
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DT 27-M
XX
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DE Huma
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                                                                                                                   To K1 is attached H and to V100 is attached OH.

A novel gene encoding human OC precursor polymer was inserted into plasmid poC 980. E.coli HB101 was transformed with this plasmid, ar made to efficiently produce the objective polymer. The polymer was treated with lysylendopeptidase B to remove spacers. The obtained human precursor was further treated with carboxy peptidase to prepai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transduced stem cells capable of maturing into differentiated cells expressing the exogenous gene is produced. Preferably, the differentiated cells are in a tissue of interest, such as bone or cartilage, and the exogenous gene is operably linked to at least one osteocalcin regulatory element derived from the hOC promoter. The exogenous gene can encode a therapeutic protein useful for treating a disease, especially osteoporosis, osteopenia, osteosarcoma, primary malignancy or metastases (all claimed).
                                                                                                                                                                                                                               Claim 5; Page 1; 11pp; Japanese.
                                                                                                                                                                                                                                                              Human osteocarcin (OC) precursor polypeptide - purified OC by digestion with carboxypeptidase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 contacting pluripotent stem cells capable of maturing into differentiated cells with a nucleic acid comprising an exogenous gene linked to a regulatory element capable of controlling expression of the exogenous gene in the differentiated cells. A population of
                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                         06-DEC-1988;
22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human osteocarcin
                                                                                                                                                                                                                                                                                                                                                                                                                                                       03-DEC-1990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human osteocarcin
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                             formation
                                                                                                         purified human OC.
                                                                                                                                                                                                                                                                                                             WPI; 1991-018865/03
                                                                                                                                                                                                                                                                                                                                          (TAKA-) TAKARA SYUZO KK
                                                                                                                                                                                                                                                                                                                                                                                                                        22-AUG-1989;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JP02201294-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                calcium; vitamin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                invention pertains to a method for expres differentiated cells of a specific type.
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                                                                                       is a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                              also
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  49;
                                                        calcium bonded protein (depending on vitamin K) produced in It is thought to be a promoting factor during the bone on and may be used to treat diseases due to dysbolism of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                              AAR10147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98 AA;
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89JP-0214239
                                                                                                                                                                                                                                                                                                                                                                                                                      89JP-0214239
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                              and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                precursor polypeptide; OC; carboxypeptidase
K; bone formation; dysbolism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.0%;
                              AAQ10193-98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                method for expressing endogenous genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polypeptide (II).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 284; DB 19;
Pred. No. 8.2e-30;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The method involves
                                                                                                                                                                                                                                                                 W
                                                                                                                                                                                                                                                                             used
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                                                                                                                                                                                                                                                                             prepare
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98;
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                                                                                                                      prepare
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Sequence

RESULT 6
AAW34263
ID AAW3
XX

AAW34263

standard;

peptide;

49

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RESULT 5
AAU10687
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 49
                                              Matches
                                                       Query Match
Best Local
                                                                                                                 rne present invention relates to novel single nucleotide polymorphisms (SNPs) in the human bone gamma carboxyglutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as probes and primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds ar useful for (developing) treatment of diseases associated with BGLAP activity, such as osteoporosis. The present sequence represents a reference sequence for the BGLAP protein
                                                                                         Sequence
                                                                                                                                                                                                                                         Claim 27; Fig 3; 53pp; English.
                                                                                                                                                                                                                                                                          New haplotypes of the human bone gamma carboxyglutamate protein gene, useful to diagnose and treat diseases associated with the gene such a
                                                                                                               reference sequence
                                                                                                                                                                                                                                                                                                                                              Bentivegna SC,
                                                                                                                                                                                                                                                                                                                                                                     (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                            11-APR-2000; 2000US-195840P.
                                                                                                                                                                                                                                                                                                                                                                                                                   11-APR-2001; 2001WO-US12010
                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200177131-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAU10687;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAU10687 standard; Protein; 100
                                                                                                                                                                                                                                                                                                               N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                         18-OCT-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human; single nucleotide polymorphism; SNP; BGLAP; chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Reference sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-FEB-2002
 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52
\vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gamma carboxyglutamate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 100
                                                                                                                                                                                                                                                                                                                          2002-041288/05
                                             l Similarity
49; Conserv
                                                                                                                                                                                                                                                                                                             AAS16363,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                         100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             osteopathic.
                                                                                         ΑĄ,
                                                                                                                                                                                                                                                                                                                                               Chew A,
                                                                                                                                                                                                                                                                                                               AAS16364
                                                                                                                for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                     100.0%;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human
                                                                                                                                                                                                                                                                                                                                                 Choi
                                                                                                                                                                                                                                                                                                                                                                                        Not related asterns; of bo not 12/e/02
                                                                                                                BGLAP protein.
                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein; haplotyping; genotyping;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BGLAP protein.
                                            Score 284; DB 23;
Pred. No. 8.3e-30;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                 JΥ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 284; DB 12; Pred. No. 8.3e-30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                              Koshy
                                                                                                                                                                                                                                                                                                                                               ₿,
                                                                                                                                                                                                                                                                                                                                                 Rounds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
                                             Indels
                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
 100
                                                                                                                                                                                                                                                                                                                                               Stephens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100;
                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1q25-q31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                             Gaps
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RESULT 7
AAR20043
  ETT FTT XXX
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Best Local S
Matches 48
                                                                                                                                                                                                                                                                                                                                  This sequence represents a human Glu17-osteocalcin peptide. This sequence is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such as
                                                                                        gamma-carboxyglutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27-FEB-1997;
10-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Glu17-osteocalcin peptide #1
Cleavage-site
                   Peptide
                                                                    Synthetic
                                                                                                                                                                        AAR20043 standard;
                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                  Claim
                                                                                                                                                                                                                                                                                                                                                                                                                   Antibody specific for Glu17-osteocalcin, or its diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 1997-512875/47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kimura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-APR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
Modified-site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                osteoporosis;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAW34263;
                                      Peptide
                                                                                                            Fusion protein
                                                                                                                                 09-APR-1992
                                                                                                                                                    AAR20043;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (EISA ) EISAI CO LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16-OCT-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9738309-A1
                                                                                                                                                                                                                                                                Local Similarity les 48; Conserv
                                                                                                                                                                                                                         L
                                                                                                                                                                                                                                   1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                                                                                         YLYQWLGAPVPYPDPLEPRRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Т,
                                                                                                                                                                                                                                                                                                                                                                                                Page 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Morimoto
                                                                                                                                                                                                                                                                                                        49
                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                        Ä,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97JP-0043331.
96JP-0088608.
                                                                                                            for expression of human osteocalcin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           97WO-JP01246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers 21
                  /label= signal_peptide 23..44
45..48
                                                Location/Qualifiers
        /label=
                                                                                                                                                                                                                                                                                                                                                                                                 28pp;
                                                                                                                                                                        Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ß
                                                                                                                                                                                                                                                                        97.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "gamma-carboxyglutamic acid"
                                                                                                                                                                                                                                                                                                                                                                                                 Japanese
        pro_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sakakibara
                                                                                         bone matrix;
                                                                                                                                                                        97
                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                               Score 278; DB 18;
Pred. No. 2.3e-29;
0; Mismatches 1;
                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                        Gla protein
                                                                                                                                                                                                                                                                                                                                                                                                                              or its fragment
                                                                                                                                                                                                                                                                                   Length 49;
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                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                Gaps
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11-APR-2001; 2001WO-US12010

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AAU10688
ID AAU1
XX
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                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                              This sequence is a specific example of a claimed generic fusion protein comprising human osteocalcin. The pro-peptide is recognised by an enzyme capable of Glu to Gla conversion on human osteocalcin. The recombinant protein was obtained by culturing host cells transformed with a vector containing the synthetic coding sequence. The Glu residues could then be converted to Gla (i.e. gamma-carboxyglutamic acid) and the osteocalcin sequence cleaved from the propeptide. The mature protein is suitable for use in immunoassays and as a drug for treatment of bone metabolism disorders. See also AAR20044-6.
                                                                                   Location/Qualifiers Misc-difference 82
                                                                                                                      Homo
                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human osteocalcin prodn. - using fusion protein for expression in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   30-NOV-1990;
20-JUN-1990;
                                                                    Misc-difference
                                                                                                                                        osteoporosis;
                                                                                                                                                                                                    14-FEB-2002
                                                                                                                                                                                                                        AAU10688;
                                                                                                                                                                                                                                            AAU10688 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; AAQ20210.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 1992-009183/02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Protein
                   18-OCT-2001
                                                                                                                                                                                Polymorphic variant of human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eguchi H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (TEIJ ) TEIJIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-JUN-1991;
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                                       WO200177131-A2
                                                                                                                                                    one gamma
                                                                                                                                                            Human; single nucleotide polymorphism; SNP; BGLAP; chromosome 1q25-q31;
                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                              49
                                                                                                                                                                                                                                                                                            Local Similarity es 48; Conserv
                                                                                                                     sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fig 7; 53pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kamimura
                                                                                                                                         carboxyglutamate protein; haplotyping; genotyping;
is; osteopathic; variant.
                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                             AA;
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90JP-0159909.
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                                                                     94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         49..97
/label= osteocalcin
                                                           /note=
                                                                               'note=
                                                                                                                                                                                                                                             Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TE,
                                                                                                                                                                                                                                                                                                                                             97.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           English.
                                                           "Substitution
                                                                               "Substitution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sugiyama
                                                                                                                                                                                                                                             100
                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                     Score 277; DB 13;
Pred. No. 6.8e-29;
0; Mismatches 1;
                                                                                                                                                                                BGLAP protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               y DNA coding
host cells
                                                                                                                                                                                                                                             A
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                                                           of Arg
                                                                              of Glu
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                                                                               င်
                                                           to Gln"
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          human osteocalcin
                                                                                                                                                                                                                                                                                                                                                        Length 97;
                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                  49
                                                                                                                                                                                                                                                                                              97
                                                                                                                                                                                                                                                                                                                                     0;
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RESULT 9
AAR32936
ID AAR3
XX AAR3
AC AAR3
AC AAR3
AX Gamm
XX Gamm
XX Gamm
XX Gamm
XX Hisc
FT Misc
FT M
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present invention relates to novel single nucleotide polymorphisms (SNPS) in the human bone gamma carboxygiutamate protein (BGLAP) gene located on chromosome 1q25-q31, and methods for haplotyping and/or genotyping the BGLAP gene in an individual. The methods of the invention make use of allele-specific oligonucleotides (ASOs) as probes and primers and/or primer-extension oligonucleotides for detecting the BGLAP gene polymorphisms. The polynucleotides and screened compounds are useful for (developing) treatment of diseases associated with BGLAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       activity, such as osteoporosis. The present sequence represents a polymorphic variant of the BGLAP protein (AAU10687).

Note: The present sequence is not given in the specification but is created by the indexer from the information given in the patent.
                                                                                                                                                            31-JUL-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gamma-carboxyglutamic acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            05-JUL-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              New haplotypes of the human bone gamma carboxyglutamate protein gene, useful to diagnose and treat diseases associated with the gene such a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI;
                       WPI; 1993-088665/11
                                                                                                               31-JUL-1991;
                                                                                                                                                                                                          09-FEB-1993.
                                                                                                                                                                                                                                                       JP05032697-A
                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                    Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR32936;
                                                                  (TEIJ ) TEIJIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAR32936 standard; peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bentivegna
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (GENA-) GENAISSANCE PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2002-041288/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
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                                                                    LTD.
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                                                                                                                                                            91JP-0213251
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                                                                                                               91JP-0213251
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24
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Pred. No. 9.6e-29;
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                                                                                                                                                                                                                                                                                               gamma-carboxyglutamic acid
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                                        This sequence represents a human Glul7-osteocalcin peptide. This sequent is recognised by the antibody of the invention. The antibody of the invention is an anti-Glul7-osteocalcin antibody or its fragment, which binds to Glul7-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such osteoporosis.
                                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The synthetic 21, 24, gamma-carboxyglutamic acid form of human osteocalcin (OS) was produced by introducing protected Gla. The substance may be produced in high yield and is useful as standard for the control of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Synthetic human osteo:calsin for standard in determn. of natural osteo:calsin - prepd. by introducing gamma-carboxy:glutamic acid as fluorenyl protected gp.
                                                                                                                                                                                                                                            Antibody specific diagnosis of bone
                                                                                                                                                                                                                                                                                                              WPI; 1997-512875/47.
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10-APR-1996;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-APR-1998
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                                                                                                                                                                                                                                                                                                                                                                                                  (EISA ) EISAI CO LTD.
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47; Conserv
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                                                                                                                                                                                                   Page 16-17;
                                                                                                                                                                                                                                                                                                                                                       Morimoto S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49
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96JP-0088608
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                                                                                                                                                                                                   Japanese.
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Pred. No. 1.
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RESULT 12
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AAW34265
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Best Local Similarity
 AAR32937;
                    AAR32937 standard;
                                                                                                                                                                              This sequence represents a human Gla21-osteocalcin peptide. This sequent is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                                                                               Antibody specific for Glul7-osteocalcin, or its fragment - diagnosis of bone disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glu17-osteocalcin; Gla21-osteocalcin; antibody; bone disorder; diagnosis;
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                                                                                                                                                    Sequence
                                                                                                                                                                       osteoporosis
                                                                                                                                                                                                                                           Claim 4; Page 17; 28pp; Japanese.
                                                                                                                                                                                                                                                                                              WPI; 1997-512875/47.
                                                                                                                                                                                                                                                                                                                Kimura T,
                                                                                                                                                                                                                                                                                                                                                       27-FEB-1997;
10-APR-1996;
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                                                                  YLYQWLGAPVPYPDPLEPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                          47; Conservative
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95.9%;
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                                                                                                         Score 272; DB Pred. No. 1.4e 0; Mismatches
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No. 1.4e-28;
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1.4e-28;
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RESULT 13
AAW34266
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Best Local Similarity
Matches 46; Conserv
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                                                                                                                                                                                                                                                                                                                                       Synthetic human osteo:calsin for standard in determn. osteo:calsin - prepd. by introducing gamma-carboxy:glu as fluorenyl protected gp.
                                                             Glu17-osteocalcin;
                                                                             Gla21-osteocalcin peptide #2.
                                                                                                                                                                                                                                                                                                                        Claim 2;
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                                                                                                                 AAW34266;
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                  Key
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                                                    osteoporosis;
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          Modified-site
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                                                                                                                                                                             1 YLYQWLGAPVPYPDPLXPRRXVCXLNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                       1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21,
                                                                                                                                                                                                                                                                                                                                                                             1993-088665/11.
                                  sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24,
                                                                                                                                                                                                                                                                                                                       Page 2; 10pp; Japanese.
                                                                                                                                                                                                                                                    49
                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gla human osteocalsin peptide.
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                                                                                               (first entry)
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                                                                                                                                                                                                                                                                                                                                                                                              LTD.
                                                                                                                                                                                                                                                                                                                                                                                                               91JP-0213251
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21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
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24
         Location/Qualifiers
/note=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ′label=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _abel=
                                                            Gla21-osteocalcin;
                                                                                                                                  peptide;
                                                                                                                                                                                                                         93.7%;
93.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          = OTHER
= "OTHER=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER
"gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "OTHER-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER
                                                                                                                                   49
                                                                                                                                                                                                                Score 266; DB Pred. No. 8.8e 0; Mismatches
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                                                                                                                                                                                                                0,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gamma-carboxyglutamic
                                                                                                                                                                                                                                                                                                                                               ndard in determn. of natural gamma-carboxy:glutamic acid
                                                             antibody;
                                                                                                                                                                                                                         DB 14;
.8e-28;
acid"
                                                             bone
                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acid"
                                                             disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           acid"
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                                                                                                                                                                                                49
                                                                                                                                                                                                                0;
                                                             diagnosis;
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RESULT 14
AAW01681
ID AAW01681
XX AAW01681
AC AAW01
XX BONE
DY 01-AF
XX BONE
XX BONE
XX BONE
XX HOMO
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FT Misc-
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This sequence represents a human Gla21-osteocalcin peptide. This sequent is recognised by the antibody of the invention. The antibody of the invention is an anti-Glu17-osteocalcin antibody or its fragment, which binds to Glu17-osteocalcin, Gla21-osteocalcin or their fragments. The antibody can be used for the diagnosis of bone related disorders, such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 4; Page 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Antibody specific diagnosis of bone
                            Modified-site
                                                    Misc-difference
                                                                                          Modified-site
                                                                                                                  Misc-difference
                                                                                                                                            Misc-difference
                                                                                                                                                                     Misc-difference
                                                                                                                                                                                                                                                                                                     01-APR-1997
                                                                                                                                                                                                                                                                                                                             AAW01681;
                                                                                                                                                                                                                                                                                                                                                      AAW01681 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (EISA ) EISAI CO LTD.
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10-APR-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-APR-1997;
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matrix; therapy; 
                                                                                                                                                                                                                                                                          Gla protein
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l Similarity 93.9%;
46; Conservative
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                                                                                                                                                                                                                                                                                                  (first entry)
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96JP-0088608
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12
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23..29
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21
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            /label-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for Glu17-osteocalcin, or its fragment disorders such as osteoporosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28pp; Japanese
                                                                                                                                                                                                                                                                                                                                                      protein;
                                                                                                                                                                                                                                   ; osteocalcin; Vitamin K-dependent protein;
diagnosis; assay; metabolic bone disease.
"gamma-carboxyglutamic acid"
                                       "underlined
                                                            "gamma-carboxyglutamic acid"
                                                                                                      "underlined
                                                                                                                              "underlined
                                                                                                                                                        "underlined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "gamma-carboxyglutamic acid"
             OTHER
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                                                                              OTHER
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                                                                                                                                                                                                                                                                                                                                                      49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 266; DB 18;
Pred. No. 8.8e-28;
0; Mismatches 3;
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                                                                                                                                                        specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               acid"
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RESULT 15
AAB91917
ID AAB91
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Best Local
                          17-MAY-1999;
10-SEP-1999;
15-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                            disease. The protein that protein).
                                                                                                                       Homo sapiens.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                   A method for determining concentration of osteocalcin in serum or plasma is improved with addition of divalent metal lons to inhibit decomposition of the protein. The method is useful in therapy and diagnosis of bone disease. The present sequence is osteocalcin (a vitamin K-dependent protein that is a component of the bone matrix, or alternatively bone Gla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Determn. of osteocalcin in serum metal ions to inhibit decompsn. c and diagnosis of bone disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HENN-)
                                                                                                                                                  blood component;
hydroxyl; thiol;
                                                                                                                                                                                        Bone Gla protein
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                                                                                                                                                                                                                                                  AAB91917
                                                                                                                                                                                                                                                                                                                                                                          Sequence
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-1995
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                                                                17-MAY-2000;
                                                                                   23-NOV-2000
                                                                                                      WO200069900-A2
                                                                                                                                                                      Protection;
                                                                                                                                                                                                            22-JUN-2001
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29-NOV-1993;
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                                                                                                                                                                                                                                                                                                                                     46;
                                                                                                                                                                                                                                                                                                                                              Similarity
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HENNING
                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                           49
                                                                                                                                                                                                                                                                                                                                   93.0%;
nilarity 93.9%;
Conservative
                                                                                                                                                  endogenous therapeutic peptide; peptidase; conjugation;
nent; modification; succinimidyl; maleimido group; amino
hiol; hormone; growth factor; neurotransmitter.
                                                                2000WO-US13576
                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Weckermann
                          99US-0134406.
99US-0153406.
99US-0159783.
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46
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                                                                                                                                                                                        peptide SEQ
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                                                                                                                                                                                                                                                 Peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           9pp;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "underlined
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                                                                                                                                                                                                                                                                                                                                                                                                                                                            German.
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                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                   Score 264; DB 16;
Pred. No. 1.6e-27;
D; Mismatches 3;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       m or plasma - with addn. of divale of the protein, useful in therapy
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(CONJ-) CONJUCHEM INC

Bridon DP,

Ezrin AM,

Milner PG,

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The present invention describes a modified therapeutic peptide (I) comprising a therapeutically active amino acid region (III) and a reactive group (II) (e.g. succinimidyl and maleimido groups) attached to a less therapeutically active amino acid region (IV), which covalently bonds with amino/hydroxyl/thiol groups on blood components to form a peptidase stabilised therapeutic peptide composed of 3-50 amino acids. (I) are useful for modifying therapeutic peptides e.g. hormones, growth factors and neurotransmitters, to protect them from peptidase activity in vivo for the treatment of various disorders. Endogenous therapeutic peptides are not suitable as drug candidates as they require frequent administration due to rapid degradation by peptidases in the body. Modifying and attaching therapeutic peptides to albumin prevents or reduces the action of peptidases to increase length of activity (half life) and specificity as bonding to large molecules decreases and specificity as bonding to large molecules decreases. AbB90829 to AbB92441 represent peptides which can be used in the exemplification of the present invention.
                                                                                                                                          Query Match 89.1%;
Best Local Similarity 95.9%;
Matches 47; Conservative
                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Modifying and attaching therapeutic peptides to albumin prevents peptidase degradation, useful for increasing length of in vivo activity
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47 AA;
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                                                                                                                                                                                 Score 253; DB 22;
Pred. No. 4.4e-26;
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Search completed: December 4, 2002, 15:33:14
Job time: 35 secs

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Result
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Listing first 45 summaries
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Perfect score:
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                                                                                                                                                                                                                                                                                                            Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                    Score
             284
284
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1: /cgn2_6/ptodata/1/paa/US06_COMB.pep:*

3: /cgn2_6/ptodata/1/paa/US07_COMB.pep:*

3: /cgn2_6/ptodata/1/paa/US08_COMB.pep:*

4: /cgn2_6/ptodata/1/paa/US08_COMB.pep:*

6: /cgn2_6/ptodata/1/paa/US082_COMB.pep:*

6: /cgn2_6/ptodata/1/paa/US082_COMB.pep:*

7: /cgn2_6/ptodata/1/paa/US083_COMB.pep:*

9: /cgn2_6/ptodata/1/paa/US085_COMB.pep:*

10: /cgn2_6/ptodata/1/paa/US085_COMB.pep:*

11: /cgn2_6/ptodata/1/paa/US085_COMB.pep:*

12: /cgn2_6/ptodata/1/paa/US086_COMB.pep:*

13: /cgn2_6/ptodata/1/paa/US089_COMB.pep:*

14: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

15: /cgn2_6/ptodata/1/paa/US092_COMB.pep:*

16: /cgn2_6/ptodata/1/paa/US092_COMB.pep:*

17: /cgn2_6/ptodata/1/paa/US092_COMB.pep:*

18: /cgn2_6/ptodata/1/paa/US093_COMB.pep:*

19: /cgn2_6/ptodata/1/paa/US093_COMB.pep:*

20: /cgn2_6/ptodata/1/paa/US095_COMB.pep:*

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20: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

21: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

22: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

23: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

24: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

25: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

26: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

27: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

26: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

27: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*

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27: /cgn2_6/ptodata/1/paa/US099_COMB.pep:*
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Gapop 10.0 , Gapext 0.5
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98
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  PCT-US02-22821-108
US-09-462-931-2
US-10-197-954-108
US-07-717-811A-5
US-08-246-626-5
US-08-246-626-5
PCT-US01-08655-186
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Sequence 108, App
Sequence 2, Appli
Sequence 108, Appli
Sequence 5, Appli
Sequence 5, Appli
Sequence 186, App
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ALTGUMENTS	US-10-253-493-2179	US-10-253-493-2147	-10-253-471-2	'n	52-756-2	-09-962-756-2	30412-2	-30412-2	30312-2	30312-214	ω-2	\vdash	2-756	30412	N1	US-10-253-493-2166	US-10-253-471-2166	-216	PCT-US02-30412-2166	Ø.	US-09-036-085-16	US-09-036-085-10	US-08-246-626-10	US-07-717-811A-10	US-09-036-085-22	US-60-169-840-5089	60-163-123	-60-160-203	-US01-08655-478	-09-657-276-	-09-036-085-5	-09-657-276-	-08-973-667	-08-973-667-	08-973-	-08-9/3-667-1	-10-217-651-3	-10-143-89	PCT-US01-12010-3
		2147,	2179,	2147,	æ	e 2147,	2179,	2147,		2147, 1	2143,	e 2143,	e 2143,		2143, 7	e 2166,	2166,	e 2166,	2166	2166,	16,	e 10,	10,	10, 7	22, Ap	5089,	1219,	e 3372	478, Ar	5	5 Apr	100	4.	ω	N	1, A	<u>.</u> .	e 23	Sequence 3, Appli

ALIGNMENTS

related opticalizes

ORGANISM: Homo Sapien	PCI	
TYPE: PRT		
SEQ ID NO 108	٠.	
SOFTWARE: FastSEQ for Windows Version 4.0	٠.	
NUMBER OF SEQ ID NOS: 149	٠.	
PRIOR FILING DATE: 2002-03-11	٠.	
PRIOR APPLICATION NUMBER: 60/363,433	٠.	
PRIOR FILING DATE: 2001-08-21	٠.	
PRIOR APPLICATION NUMBER: 60/314,123	٠.	
PRIOR-FILING DATE: 2001-07-16	-	
PRIOR APPLICATION NUMBER: 60/306,019	٠.	
CURRENT FILING DATE: 2002-07-16	٠.	
CURRENT APPLICATION NUMBER: PCT/US02/22821	٠.	
Č.	٠.	
TITLE OF INVENTION: Compositions	٠.	
TITLE OF INVENTION: And Methods For Analyzing The Proteome And Complex	٠.	
TITLE OF INVENTION: Capture Compounds, Collections Thereof	٠.	
APPLICANT: Little, Daniel	٠.	
APPLICANT: Siddiqi, Suhaib	٠.	
APPLICANT: Koister, Hubert	٠.	
APPLICANT: HK Pharmaceuticals, Inc.	٠.	
GENERAL INFORMATION:	٠.	
Sequence 108, Application PC/TUS0222821	٠.	
PCT-US02-22821-108	PCI	
RESULT 1	RES	

Query Match

100.0%;

Score 284;

DB 1;

Length 49;

Length 49;

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US-10-197-954-108
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Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Ver. 2.1 SEQ ID NO 2
                                SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 108
LENGTH: 49
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
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TITLE OF INVENTION: Isolated osteocalcin fragments
FILE REFERENCE: Isolated osteocalcin fragments
CURRENT APPLICATION NUMBER: US/09/462,931
CURRENT FILING DATE: 2000-01-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: HELLMAN, Jukka
APPLICANT: KKTNEN, Sanna-Maria
                                                                                                                                                                                                                                     TITLE OF INVENTION: Capture Compounds, Collections Thereof TITLE OF INVENTION: And Methods For Analyzing The Proteome And Complex TITLE OF INVENTION: Compositions
FILE REFERENCE: 24743-2305
CURRENT APPLICATION NUMBER: US/10/197,954
CURRENT FILING DATE: 2002-07-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: FI 973371
PRIOR FILING DATE: 1997-08-15
NUMBER OF SEQ ID NOS: 4
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                                                                                                                        PRIOR APPLICATION NUMBER: 60/314,123
PRIOR FILING DATE: 2001-08-21
PRIOR APPLICATION NUMBER: 60/363,433
PRIOR FILING DATE: 2002-03-11
                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
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                                                                                                                                                                                                PRIOR PAPPLICATION NUMBER: 60/306,019
PRIOR FILING DATE: 2001-07-16
                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: K"ster, Hubert
                                                                                                            NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: peptide
LOCATION: (1)..(49)
OTHER INFORMATION: Glu at residues 17,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH: 49
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LTVGREN, Timo
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                                                                                                                                                                                                                                                                                                                                                     Little, Daniel
                                                                                                                                                                                                                                                                                                                                                                   Siddiqi,
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Pred. No. 3.2e-28;
); Mismatches 0;
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thes 0;
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                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES:
CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                     FRAGMENT TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                             STRANDEDNESS: do
TOPOLOGY: linear
MOLECULE TYPE:
                                                                          POSITION IN GENOME:
                                                                                                                     IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                    ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                HYPOTHETICAL:
                                                                                                                                                 CELL TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Warren M. Cheek J
REGISTRATION NUMBER: 33
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Washington STATE: D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: FILING DATE: 199106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CHROMOSOME/SEGMENT: MAP POSITION:
                                                                                                                                                                                            DEVELOPMENTAL STAGE: HAPLOTYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
NAME/KEY:
                             UNITS:
                                                                                                         LIBRARY:
                                                                                                                                      ORGANELLE
                                                                                                                                                                              TISSUE TYPE:
                                                                                                                                                                                                                          INDIVIDUAL ISOLATE:
                                                                                                                                                                                                                                           STRAIN:
                                                                                                                                                                                                                                                       ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                      LENGTH:
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                                                                                                                                                                                                                                                                                                                                                                                        98 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 U.S.A.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Recombinant Human Osteocalcin
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RESULT 5
US-08-246-626-5
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; PUBLICATION DATE:
; RELEVANT RESIDUES
US-07-717-811A-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 5, Application US/08246626 GENERAL INFORMATION:
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                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/717,811
FILING DATE: 19-Jun-1991
APPLICATION NUMBER: US 08/131,932
FILING DATE: 05-OCT-1993
ATTORNEY/AGENT INFORMATION:
NAME: Walten M. Cheek JI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                   ...ACTERISTICS:
98 amino acids
sTRANDEDNESS: dr..
TOPOLOGY:
1,
(OLECULE "...
                                                                                                   SEQUENCE CHARACTERISTICS:
MOLECULE TYPE:
HYPOTHETICAL:
ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
                                                                                                                                                            REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 202-371-8850
                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Hiroshi EGUCHI et al. TITLE OF INVENTION: Recombinant
                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 20-MAY CLASSIFICATION: 530
                                                                                                                                              TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM: MS-DOS
SOFTWARE: DisplayWrite
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 98
                                                                                                                                                                                                       REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOCUMENT NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VOLUME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAGES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ISSUE:
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                                                                                                                                                202-371-8856
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20-MAY-1994
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Pred. No. 7.2e-28;
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US-08-246-626-5
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GENERAL INFORMATION:
APPLICANT: Hyseq, Inc
              SOFTWARE: Cu
SEQ ID NO 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
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Best Local
                                                               PRIOR PRIOR
                                                                                                                      PRIOR APPLICATION NUMBER: 09/668,317
PRIOR FILING DATE: 2000-09-22
PRIOR APPLICATION NUMBER: 09/695,783
PRIOR FILING DATE: 2000-10-24
PRIOR APPLICATION NUMBER: 09/728,628
PRIOR FILING DATE: 2000-12-01
PRIOR FILING DATE: 2000-12-01
                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: 09/522,929
PRIOR FILING DATE: 2000-04-18
PRIOR-APPLICATION NUMBER: 09/770,160
PRIOR FILING DATE: 2001-01-26
                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: PCT/US01/08655 CURRENT FILING DATE: 2001-04-16
                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION: NOVEL MACROPHAGE NUCLEIC ACIDS AND POLYPEPTIDES FILE REFERENCE: 21272-065
                                               NUMBER OF SEQ ID
                                                                                             PRIOR
CENGTH:
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CHROMOSOME/SEGMENT:
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                                                            APPLICATION NUMBER: 09/816,828 FILING DATE: 2001-03-22
                                                                                          APPLICATION NUMBER: 09/783,066 FILING DATE: 2001-02-13
100
                             Custom
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49; Conservative
                                               NOS:
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Pred. No. 7.2e-28;
Mismatches 0;
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ORGANISM: Homo sapiens

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RESULT 8
US-10-143-899-23
Sequence 23, Application US/10143899
GENERAL INFORMATION:
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                                             US-10-143-899-23
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               Query Match
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Best Local
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 Best Local Similarity
                                                                                                                                                                                                                                                                                          APPLICANT: ROSen et al.
TITLE OF INVENTION: Nucleic Acids, Proteins, and Antibodies
FILE REFERENCE: PT247C1N
CURRENT APPLICATION NUMBER: US/10/143,899
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CURRENT APPLICATION NUMBER: PCT/US01/12010 CURRENT FILING DATE: 2001-04-11
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TITLE OF INVENTION: Haplotypes of the BGLAP
FILE REFERENCE: MWH-0512PCT BGLAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Genaissance Pharmaceuticals, Inc. APPLICANT: Bentivegna, Steven C. APPLICANT: Chew, Anne
                                                                                                                                                                                                                                                   Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: 60/195,840 PRIOR FILING DATE: 2000-04-11 NUMBER OF SEQ ID NOS: 39
                                                                                                                                                                                                                                                                                 CURRENT FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn Ver. 2.1
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                                                       OTHER INFORMATION: Xaa equals
                                                                        NAME/KEY: misc_feature LOCATION: (64)
                                                                                                                  OTHER INFORMATION: Xaa
                                                                                                                                NAME/KEY: misc_feature LOCATION: (18)
                                                                                                                                                              FEATURE:
                                                                                                                                                                          LENGTH: 127
TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                     FEATURE
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100.0%;
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                                                         any of the naturally occurring L-amino acids
                                                                                                                 any of the
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Pred. No. 7.4e-28;
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Pred. No. 7.4e-28;
Score 284; DB 25; Pred. No. 9.9e-28;
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US-10-217-651-336
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PRIOR FILING DATE: 2001-01-16
PRIOR APPLICATION NUMBER: 60/179,065
PRIOR FILING DATE: 2000-01-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/10/217,651 CURRENT FILING DATE: 2002-08-14
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APPLICATION NUMBER: 60/236,327 FILING DATE: 2000-09-29
                                                                                                                                                                  APPLICATION NUMBER: 60/224,519 FILING DATE: 2000-08-14
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FILING DATE: 2000-09-29
                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/224,518 FILING DATE: 2000-08-14
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FILING DATE: 2000-09-21
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FILING DATE: 2000-09-21
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                                                                                 APPLICATION NUMBER: 60/241,809 FILING DATE: 2000-10-20
                                                                                                                                               APPLICATION NUMBER: 60/220,964
                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 2000-08-14
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                                                         APPLICATION NUMBER: 60/249,299
                                                                                                                          FILING DATE: 2000-07-26
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                                        FILING DATE: 2000-11-17
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PRIOR

R FILING DATE: 2000-09R APPLICATION NUMBER: R
R FILING DATE: 2000-09R APPLICATION NUMBER: 6
R FILING DATE: 2000-09R APPLICATION NUMBER: 6
R FILING DATE: 2000-09-

E: 2000-09-25 N NUMBER: 60/2 E: 2000-09-01

60/229,343

E: 2000-09-01 N NUMBER: 60/: E: 2000-09-01

60/229,287 60/229,345

R APPLICATION NI R FILING DATE: R APPLICATION NI R FILING DATE: R APPLICATION NI

NUMBER:

60/229,509 60/231,413

NUMBER: 60/: 2000-09-08

APPLICATION | FILING DATE:

NUMBER: 60/229,513 : 2000-09-05

APPLICATION NUMBER: 60/237,039

: 2000-09-05 NUMBER: 60/:

60/236,367

OR FILING DATE: 2000-10-20
OR APPLICATION NUMBER: 60/244,617
OR FILING DATE: 2000-11-01
OR APPLICATION NUMBER: 60/225,268
OR FILING DATE: 2000-08-14
OR APPLICATION NUMBER: 60/236,368
OR FILING DATE: 2000-09-29
OR APPLICATION NUMBER: 60/251,856
OR APPLICATION NUMBER: 60/251,856
OR APPLICATION NUMBER: 60/251,868
OR APPLICATION NUMBER: 60/251,868
OR FILING DATE: 2000-12-08
OR FILING DATE: 2000-12-08
OR APPLICATION NUMBER: 60/259,344
OR APPLICATION NUMBER: 60/229,344
OR APPLICATION NUMBER: 60/229,344
OR APPLICATION NUMBER: 60/234,997

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FILING DATE: 2000-09-08
APPLICATION NUMBER: 60/2
FILING DATE: 2000-09-08
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APPLICATION NUMBER: 60/246,475
FILING DATE: 2000-11-08
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APPLICATION NUMBER:
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FILING DATE: 2000-11
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FILING DATE: 2000-10-20
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APPLICATION NUMBER:
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FILING DATE: 2000-09-08
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APPLICATION NUMBER:
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FILING DATE: 2000-11-
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l Similarity 100.
49; Conservative
                                                                                                          NUMBER: 60/
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1-17
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                                               0;
                                               Score 284; I
Pred. No. 9.9
D; Mismatches
                                              DB 26;
).9e-28;
s 0;
                                                Indels
                                                                       Length
                                                                          127;
                                                0;
                                                  Gaps
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DR FILING DATE: 2000-10-02

DR APPLICATION NUMBER: 60/237,038

DR FILING DATE: 2000-10-02

DR APPLICATION NUMBER: 60/236,370

DR FILING DATE: 2000-09-29

DR APPLICATION NUMBER: 60/236,802

DR FILING DATE: 2000-10-02

DR PPLICATION NUMBER: 60/237,037

DR FILING DATE: 2000-10-02

DR FILING DATE: 2000-10-02

RELING DATE:
REPLICATION NI

NUMBER: 60/235,836 : 2000-09-27 NUMBER: 60/230,438

NUMBER: 60/225,214 2000-08-14

0

: 2000-09-06 NUMBER: 60/215,135 : 2000-06-30

N NUMBER: 60/225,759
E: 2000-08-14
N NUMBER: 60/225,213
E: 2000-08-14
N NUMBER: 60/227,182
E: 2000-08-22

FILING

R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:

N NUMBER: 60/246,474 E: 2000-11-08 N NUMBER: 60/246,532 E: 2000-11-08

FILING DATE: APPLICATION

: 2000-11-17 NUMBER: 60/226,681

2000-08-22

APPLICATION NUMBER: 60/249,216
FILING DATE: 2000-11-17
APPLICATION NUMBER: 60/249,210
FILING DATE: 2000-11-17

R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
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R APPLICATION N

NUMBER:

60/241,787

2000-10-20

NUMBER: 60/239,937: 2000-10-13 NUMBER: 60/239,935 : 2000-10-13 APPLICATION NUMBER: FILING DATE: 2000-10 APPLICATION NUMBER:

E: 2000-10-02 N NUMBER: 60/2 E: 2000-10-20

60/240,960 60/237,040

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RESULT 11
US-08-973-667-2
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US-08-973-667-1
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                                                             Sequence 2, Applicati
GENERAL INFORMATION:
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                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                             Best
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
 APPLICANT: Kimura, APPLICANT: Morimoto TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: 42
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: JP 8-FILING DATE: 10-APR-1996
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP97/01246
FILING DATE: 10-APR-1997
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Sakakibara, Shunpei
APPLICANT: Kimura, Terutoshi
APPLICANT: Morimoto, Shigeto
                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Crawford, Arthur R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT: Morimoto, Shigeto
TITLE OF INVENTION: ANTI-GLU17-OSTECCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Relaction
                                                                                                                                                                                                                                                                                                  NAME/KEY: Modified LOCATION: 21 OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 10 CLASSIFICATION:
                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: JP 9 FILING DATE: 27-FEB-1997
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                                                                                                                                                                                                                                                                                                                                                                        ORGANISM:
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                                                                                                                                                            YLYQWLGAPVPYPDPLEPRRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                                                                             Application US/08973667
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1100 North Glebe Rd. 8th floor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                               Sakakibara, Shunpei
                                                                                                                                                                                                                           Conservative
                               Kimura, Terutosh
                                                                                                                                                                                                                                                                                                                         Modified-site
                                                                                                                                                                                                                                                                                                                                                                        Human
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10-DEC-1997
                                                                                                                                                                                                                                        97.9%;
98.0%;
ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                       /product= "Gla"
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                                                                                                                                                                                                                        Score 278; DB 13;
Pred. No. 1.9e-27;
0; Mismatches 1;
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RESULT 12
US-08-973-667-3
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Matches
                                             Sequence 3, Applicati
GENERAL INFORMATION:
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Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 703-816-4100 INFORMATION FOR SEQ ID NO:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP97/01246
FILING DATE: 10-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 8-88608
FILING DATE: 10-APR-1996
                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
LENGTH: 49 amino acids
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MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                            APPLICANT:
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                                                                                                                                                                                                                                                                                     NAME/KEY: Modified-site
LOCATION: 21
OTHER INFORMATION: /product= "Gla"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM PC
OPERATING SYSTEM:
SOFTWARE: Patent1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 1100 NO. CITY: Arlington
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ZIP: 22201-4741
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OTHER INFORMATION:
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                                                                                                                                               1 YLYQWLGAPVPYPDPLXPRRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
                                                                                                                                                              1 YLYQWLGAPVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
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                                                             Application US/08973667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      amino acid
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1100 North Glebe Rd. 8tl
             Kimura, Terutoshi
                            Sakakibara, Shunpei
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYSTEM: PC-DOS/MS-DOS
PatentIn Release #1.0, Version #1.30
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
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                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein
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                                                                                                                                                                                                                          95.8%;
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                                                                                                                                                                                                           Score 272; DB 13;
Pred. No. 1.1e-26;
0; Mismatches 2;
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                                                                                                                                                                                                                                         Length 49;
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APPLICANT: MORIMOTO, Shigeto
TITLE OF INVENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
NUMBER OF SEQUENCES: 6

0

CORRESPONDENCE ADDRESS:

ADDRESSEE:

1100 North Glebe Rd. 8th floor

COUNTRY:

USA

22201-4741

Arlington

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                                                                                                                                                                                                                                 US-08-973-667-4
                                                                                                                                                                                                                                                   RESULT 13
                                                                                                                                                                                              Sequence 4, Application US/08973667 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 47; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 703-816-4100 INFORMATION FOR SEQ ID NO:
                                                                                                                                                APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: JP 9
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: JP 8
FILING DATE: 10-APR-1996
PRIOR APPLICATION DATA:
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APPLICATION NUMBER: PCT/JP97/01246
FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: protein ORIGINAL SOURCE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
                                                                                             NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                 APPLICANT:
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                             CITY: Arlington STATE: VA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: /product-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS:
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 423-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 10-DEC
                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION:
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                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: Modified-site
                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                1 YLYQWLGAPVPYPDPLXPRXVCELNPDCDELADHIGFQEAYRRFYGPV 49
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22201-4741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  amino acid
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                                                                E: NIXON & VANDERHYE P.C. 1100 North Glebe Rd. 8t)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     49 amino acids
                                                                                                                           MORIMOTO, Shigeto
VENTION: ANTI-GLU17-OSTEOCALCIN ANTIBODY
                                                                                                                                                                                                                                                                                                                                                                  Conservative
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SYSTEM: PC-DOS/MS-DOS
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95.9%;
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Pred. No. 1.1e-26;
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                                                                8th floor
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; OTHER INFORMATION: /product= "Gla"
US-08-973-667-4
                                                                                                                                                                                                                                  US-09-657-276-1093
                                           APPLICANT: Holmes, D.
APPLICANT: Thibaudea
TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                 Sequence 1093, Application US/09657276 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                   Matches
CURRENT APPLICATION NUMBER: US/09/657,276
CURRENT FILING DATE: 2000-09-07
                                                                                                                                 APPLICANT:
                                                                                                                                                                APPLICANT:
                                FILE REFERENCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEFAX: 703-816-4100 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REGISTRATION NUMBER: 25,327
REFERENCE/DOCKET NUMBER: 42
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: JP 9-
FILING DATE: 27-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: Crawford, Arthur R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
NAME/KEY:
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PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: protein ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                Match 93.7%;
Local Similarity 93.9%;
les 46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OTHER INFORMATION: /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: PCT/JP97/01246 FILING DATE: 10-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY:
LOCATION:
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LOCATION:
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                                            Milner, Peter
Holmes, Darren
Thibaudeau, Karen
Thibaudeau, Karen
Thibaudeau PROTECTION OF ENDOGENOUS THERAPEUTIC PEPTIDES FROM
NVENTION: PEPTIDASE ACTIVITY THROUGH CONJUGATION TO BLOOD
                                                                                                                                             Bridon, Domi
Ezrin, Alan
                                                                                                                                                                                   Conjuchem, Inc.
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21
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Pred. No. 6.3e-26;
0; Mismatches 3
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                                                                                                                                                                                                                                                                                                                                                                                                  DB 13;
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US-09-036-085-5
; Sequence 5, Application US/09036085
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Description of Artificial Sequence: Synthetic
OTHER INFORMATION: Peptide
US-09-657-276-1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
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                                                                                                                                       ; MOLECULE TYPE: protein US-09-036-085-5
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PRIOR FILING DATE: 1999-10-18
NUMBER OF SEQ ID NOS: 1617
SOFTWARE: Patentin Ver. 2.1
SEQ ID NO 1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 89.1%; Score 253; DB 20; Best Local Similarity 95.9%; Pred. No. 2.7e-24; Matches 47; Conservative 0; Mismatches 0
                                                          Matches
                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: PRIOR FILING DATE: 1999-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR FILING DATE: 199-05-17
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TYPE: PRT
                                                                                                                                                                                                                                                                TELEFAX: (617)742-421 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
PRIOR APPLICATION DATA:
PRIOR APPLICATION NUMBER: PROV
PILING DATE: March 6, 19
ATTORNEY/AGENT INFORMATION:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDJUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: PC POOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Gary S. Stein et al.
TITLE OF INVENTION: Gene Therapy Using Bone Marrow Transplants Transfected With T
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSE: LAHIVE & COCKFIELD
STREET: '28 State Street
                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
LENGTH: 42 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                   NAME: Mandragouras, Amy E.
REGISTRATION NUMBER: 36,207
REFERENCE/DOCKET NUMBER: UMM-007
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617)227-7400
                                                        y Match 84.5%; Score 240; DB 14; Length 42; Local Similarity 100.0%; Pred. No. 1.1e-22; hes 42; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Boston
STATE: Massa
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APVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 49
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Db 1 APVPYPDPLEPRREVCELNPDCDELADHIGFQEAYRRFYGPV 42

Search completed: December 4, 2002, 15:37:23 Job time: 143 secs

GenCore version 5.1.3 Copyright (c) 1993 - 2002 Compugen Ltd

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Result
No.
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    1184
1184
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1188
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score grea
and is der
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                                                                                                                                                                                                                                                                          length: 0
length: 2000000000
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Match Length
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1 YLYQWLGAPVPYP
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   Maximum Match 100%
Listing first 45 summaries
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          0 US-09-905-810-1

0 US-09-815-242-13925

0 US-09-815-242-11921

US-09-950-933A-66

0 US-09-924-358-47

0 US-09-815-242-11370

0 US-09-815-242-8
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Sequence 50, Appli
Sequence 13, Appli
Sequence 13925, A
Sequence 11921, A
Sequence 66, Appl
Sequence 47, Appl
Sequence 11370, A
Sequence 11370, A
Sequence 6, Appli
Sequence 6, Appli
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Sequence
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21, Appl
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10210, A
10210, A
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15, Appl
18, Appl
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48.5	49	49	49	49	49	49	49	49	49	49	49	49.5	49.5	50	50.5	51	51	51	51	52	52	52	52.5	53	53
17.1	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.4	17.4	17.6	17.8	18.0	18.0		18.0	18.3	18.3	18.3	18.5	18.7	18.7
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US-09-764-847-948	US-09-767-479-10	US-09-852-659A-77	US-09-853-161-77	US-09-852-797-77	US-09-828-302-15	US-09-846-808-20	US-10-006-867-156	US-09-874-503-6	US-09-925-299-1151	US-09-886-404-2	US-10-041-406-6	US-10-007-747-58	US-09-945-901-58	US-09-746-491-8	US-09-845-583-6	US-09-972-714-10	US-09-815-242-11699	US-10-028-051-5	US-09-841-132-501	US-09-999-248-4	US-09-797-039-5	US-09-765-068-2	US-09-802-127-5	US-09-995-542-5	US-09-858-194-2
Sequence 948, App	10,	77,	Sequence 77, Appl	Sequence 77, Appl	Sequence 15, Appl	Sequence 20, Appl	Sequence 156, App		Sequence 1151, Ap	Sequence 2, Appli	Sequence 6, Appli	`	Sequence 58, Appl	8	σ	10,	Sequence 11699, A	Sequence 5, Appli	Sequence 501, App	Sequence 4, Appli	5	ν,	Sequence 5, Appli	ن '	Sequence 2, Appli

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Sequence 21, Application US/09801968
Patent NO. US20020082205A1
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Itoh, NO. US20020082205A1uyuki
APPLICANT: Kavanaugh, W. Michael
TITLE OF INVENTION: HUMAN FGF-23 GENE AND GE
TITLE OF INVENTION: PRODUCTS
TITLE OF INVENTION: PRODUCTS
FILE REFERENCE: PP-17150.001/201130.40901
CURRENT APPLICATION NUMBER: US/09/801,968
CURRENT FILING DATE: 2001-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Itoh, No. US20020001825Aluyuki
TITILE OF INVENTION: No. US20020001825Alel F1
FILE REFERENCE: 08035.0001-01000
CURRENT APPLICATION NUMBER: US/09/822,485
CURRENT FILING DATE: 2001-04-02
NUMBER OF SEQ ID NOS: 35
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 29
LENGTH: 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence:protein
US-09-822-485-29
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US-09-822-485-29
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Best Local Similarity
Matches 13; Conserv
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  NUMBER OF
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SEQ ID NOS:
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. 0.00057;
                                                                                                        GENE EXPRESSION
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ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: E tag
US-09-801-968-21
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CURRENT FILING DATE: 2000-06-02
NUMBER OF SEQ ID NOS: 16
SOFTWARE: PatentIn version 3.1
SEQ ID NO 2
LENGTH: 136
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Best Local
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Best Local Similarity
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                                                                                                                                                                                                                                                                        APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
                                  CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
                                                                                                                                                                     APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: PLAKSIN, Daniel
TITLE OF INVENTION: SMALL FUNCTIONAL UNITS OF ANTIBODY HEAVY CHAIN VARIABLE REGIONS
FILE REFERENCE: 87534-2800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: FastSEQ for Windows Version SEQ ID NO 21
                                                                                                                                                       FILE REFERENCE: ELITRA.011A
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OTHER INFORMATION: variable
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mes 13; Conserv
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APPLICATION NUMBER: 60/207,727 FILING DATE: 2000-05-26
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Yamamoto, Robert T.
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%; Pred. No. 0.0
0; Mismatches
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: LOCATION: (1)..(2128)
: NAME/KEY: misc_feature
: LOCATION: (2315)..(3472)
US-09-814-777A-2
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                                                                                                                                                                       Sequence 4, Application US/09814777A
Patent No. US20020142415A1
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                                                                                                                                                       GENERAL INFORMATION:
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Matches 12; Conservative
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Best Local Similarity 39.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
ITTLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
PRIOR APPLICATION NUMBER: AU PQ6457
PRIOR APPLICATION NUMBER: AU PQ6457
PRIOR FILING DATE: 2000-03-24
APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPETIDES AND POLYNUCLEOTIDES AND METHODS OF USING
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
PRIOR APPLICATION NUMBER: AU PQ6457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-2
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WILLING DATE: 2000-03-24 NUMBER OF SEQ ID NOS: 128
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PRIOR FILING DATE: 2000-11-
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Mouse FEATURE:
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Pred. No. 3.6;
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US-09-814-777A-15
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US-09-814-777A-15
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; ORGANISM: Mouse
US-09-814-777A-4
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GENERAL INFORMATION:
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APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USING
FILE REFERENCE: 21415-0003
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                                                                                                                                                                    SEQ ID NO 18
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NAME/KEY: misc_feature
LOCATION: (1)..(482)
NAME/KEY: misc_feature
LOCATION: (679)..(1919)
OTHER INFORMATION: Exon 2
                                                                                                                                                                                                                  APPLICANT: KOOPMAN, Peter Anthony
APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USING
FILE REFERENCE: 21415-0003
CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
PRIOR APPLICATION NUMBER: AU PQ6457
PRIOR APPLICATION NUMBER: AU PQ6457
PRIOR FILING DATE: 2000-03-24
                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 128
SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/814,777A CURRENT FILING DATE: 2001-03-23 PRIOR APPLICATION NUMBER: AU PQ6457 PRIOR FILING DATE: 2000-03-24
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT
                                                                                                         ORGANISM: Human
                                                                                             FEATURE:
                                                                                                                                                 ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH: 340
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nes 16; Conserv
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Pred. No. 3.
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3.6;
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; TYPE: PRT
; ORGANISM: Human
US-09-814-777A-100
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US-09-814-777A-100
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LENGTH: 384
TYPE: PRT
ORGANISM: Human
                                                                                                                                    Query Match
Best Local Similarity
Matches 16; Conserv
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APPLICANT: KOOPMAN, Peter Anthony

APPLICANT: MUSCAT, George Eugene Orlando

TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USING

FILE REFERENCE: 21415-0003

CURRENT APPLICATION NUMBER: US/09/814,777A

CURRENT FILING DATE: 2001-03-23
                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: Pa
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PRIOR FILING DATE: 2000-03-24
NUMBER OF SECTION NUMBER SECTION NUMBER OF SECTION NUMBER SECTI
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CURRENT APPLICATION NUMBER: US/09/814,777A
CURRENT FILING DATE: 2001-03-23
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APPLICANT: MUSCAT, George Eugene Orlando
TITLE OF INVENTION: NOVEL POLYPEPTIDES AND POLYNUCLEOTIDES AND METHODS OF USING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER OF SEQ ID NOS:
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240 YGTLGTPGPYPGPLSPPPEAPPLESAEPLGPAADLWAD
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Pred. No. 4
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Pred. No. 3.9;
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4.9;
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US-09-981-353-50

Sequence 50,

Application US/09981353

Patent No. US20020160382A1

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RESULT 13
US-09-815-242-13925
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                                                                       GENERAL INFORMATION:
APPLICANT: Haselbeck
APPLICANT: Ohlsen,
APPLICANT: Zyskind,
                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 1
LENGTH: 225
TYPE: PRT
ORGANISM: Murine
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CURRENT FILING DATE: 2001-10-11
NUMBER OF SEQ ID NOS: 194
SOFTWARE: PERL Program
SEQ ID NO 50
LENGTH: 632
TYPE: PRT
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APPLICANT: Lasek, Amy W.
APPLICANT: JONES, David A.
APPLICANT: JONES, David A.
TITLE OF INVENTION: GENES EXPRESSED IN COLON CANCER
FILE REFERENCE: PA.0038 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: BIOGEN, INC.
APPLICANT: RENURER, Paul
APPLICANT: RENURER, Paul
TITLE OF INVENTION: Antagonists of Tweak and of Tweak
TITLE OF INVENTION: Receptor and Their Use to Treat:
                                                                                                                                                     Sequence 13925, Application US/09815242 Patent No. US20020061569A1
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Best Local
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/905,810 CURRENT FILING DATE: 2001-07-13 PRIOR APPLICATION NUMBER: PCT/US00/01044 PRIOR FILING DATE: 2000-01-14 PRIOR APPLICATION NUMBER: 60/116,168 PRIOR FILING DATE: 1999-01-15
                                                         APPLICANT:
                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS:
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OTHER INFORMATION: Incyte ID No. US20020160382A1 2264641CD1
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mes 18; Conserv
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mes 14; Conserv
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                                                                                                               Haselbeck, Robert
                                                                         Ohlsen, Kari L.
Zyskind, Judith W.
                                 Wall, Daniel
Trawick, John D.
Yamamoto, Robert T
                 Carr, Grant
                                                                                                                                                                                                                                                                                                                                                 Conservative
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41.9%;
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36.8%;
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Pred. No.
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12;
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                NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version
SEQ ID NO 11921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 11921, Application Patent No. US20020061569A1
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                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: Identification of Essential Genes
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
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CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-23
                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR FILING DATE: 2000-05-26
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                                                                                                             PRIOR FILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
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PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
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PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
                                                                                          PRIOR FILING DATE:
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PRIOR APPLICATION NUMBER: 60/253,625
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                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: 60/242,578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
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Zyskind, Judith W.
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27.3%;
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Pred. No. 21;
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RESULT 15

US-09-950-933A-66

; Sequence 66, Application US/09950933A

; Patent No. US20020166141A1

; GENERAL INFORMATION:
   APPLICANT: Simmons, Carl R.
   APPLICANT: NAVATION: Antimicrobial Peptides and Methods of TITLE OF INVENTION: Use
   FILE REFERENCE: 35718/238472

; CURRENT APPLICATION NUMBER: US/09/950,933A

; CURRENT FILING DATE: 2001-09-11

; PRIOR APPLICATION NUMBER: 60/232,569
   PRIOR APPLICATION NUMBER: 60/232,569
   PRIOR FILING DATE: 2000-09-13

; NUMBER OF SEQ ID NOS: 99

; SOFTWARE: FRAT SOFT WINDOWS Version 4.0

; SEQ ID NO 66

LENCTH: 191

; TYPE: PRT
   ORGANISM: Glycine max
   FEATURE:
   NAMEZ/KEY: VARIANT
   LCCATION: (1)...(48)
   OTHER INFORMATION: Xaa = Any Amino Acid

US-09-930-933A-66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Pseudomonas aeruginosa
US-09-815-242-11921
Search completed: December 4, 2002, 15:37:59
Job time: 12 secs
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